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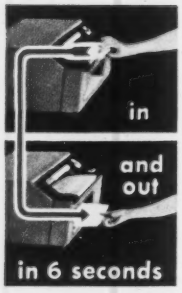

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DUN'S REVIEW and Modern Industry

JUNE 1958

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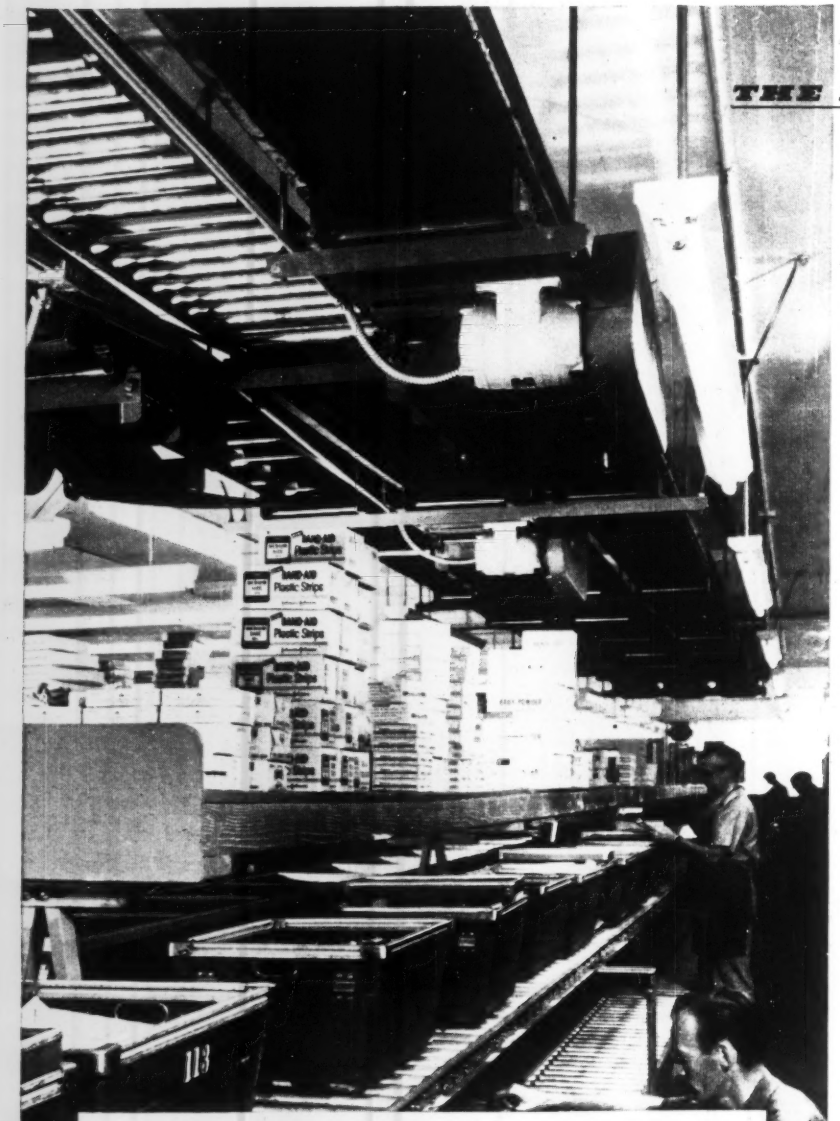

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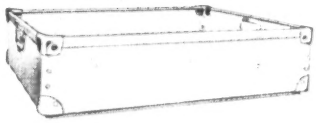

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In addition to light weight Kennett Receptacles, our own Lestershire Textile Bobbins are made of rugged, resilient, non-snagging Vulcanized Fibre.

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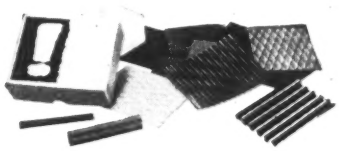

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Editorial

Most Explosive Thing in the World

ONE HUNDRED and twenty-five years ago, Alfred Nobel, founder of the Peace prize, was born in Stockholm. A century ago, he perfected a commercial explosive, which he called dynamite. It has served industry well, ripping apart the bowels of mountains to loosen veins of iron ore, prying free coal deposits wedged in seams of slate, and pulling down hillsides rich in copper, silver, and many rarer metals. It has dug ditches to drain swamps and salvage drowned acres and cleared stumpage for farmland and roadways. Nobel designed dynamite for man's welfare—not his destruction. As evidence of his ethical and moral intentions; he used his profits to establish the Peace prize.

The atom splitters, from Einstein and Fermi to the men who made the instrument that obliterated much of Hiroshima and Nagasaki, prefer to think of the atomic pile as generating power for merchant ships and power plants.

The Chinese invented gunpowder for their ceremonial firecrackers many centuries before the Italian states employed explosives for their guns in the fourteenth century. Over the years, the tools of war have become deadlier. Now for better or for worse, we have dynamite, TNT, cordite, nuclear fission, and nuclear fusion. What then is the most explosive thing in the world?

Actually, it is none of these. The most explosive thing in the world today is printer's ink. Why? Because a little of it, tossed into the alphabet, can detonate ideas that will move the minds of men with a force infinitely greater and more lasting than the whirlwind loosed by splitting an atom. Printer's ink serves good or evil, but the evidence on the positive side far outweighs the negative. For when a man with a vision of man's higher destiny touches ink to paper, its blackness holds the light of the world.

In his urge to make the inherent power of printer's ink the servant of the arts and sciences, Nobel offered annual rewards to the talented writers who used the printed word for the esthetic pleasure of their fellow men. Some books are stimulating, some challenging, some debatable, and some inherently evil. Many have left a deep impress on the minds and souls of men. Consider Adam Smith's *The Wealth of Nations*, Charles Darwin's *Origin of Species*, Thorstein Veblen's *Theory of the Leisure Class*, John Henry Newman's *Idea of a University*, and Karl Marx's *Das Kapital*.

Judgment of the printed word comes not through repression but through exposure, and its power as a force for good depends upon the discipline of the emotional by the rational. Though atomic power may threaten man's destruction, printer's ink holds promise of his salvation. Personally, we'll take our chances on the superior force of printer's ink.

The Editors

Cutler-Hammer presents ULTRAFLEX...the spectacular STATIC POWER

Adjustable Speed Packaged Drives

NO

WHAT'S NEW IN PACKAGE DRIVES...

Cutler-Hammer Ultraflex Packaged Drives provide outstanding savings in installation, operation, and maintenance

MOVING PARTS!

Ultraflex Adjustable Speed Packaged Drives offer new opportunities for quick, cost-cutting installations. Light, compact static power conversion components have replaced the conventional m-g set resulting in substantial savings in size and weight. Ultraflex Packaged Drives save up to 50% in valuable floor area . . . up to 75% in weight permitting rapid installation or rearrangement of production machinery without special handling equipment or floor loading preparations. Also, Ultraflex units require no balancing or alignment attention during installation.

Ultraflex Adjustable Speed Packaged Drives provide a new high standard of operational efficiency, ultra-responsive speed control, and ultra-precise speed regulation. No special A-c power supply is required and the exclusive Ultraflex static power conversion systems guarantee greater efficiency than ever possible with conventional drives. Further, every Ultraflex Packaged Drive works perfectly without forced ventilation which means less power is consumed as unwanted heat. Also, Ultraflex Packaged Drives are noise and vibration free.

Dependable, maintenance-free performance is one of the outstanding achievements of the all new Cutler-Hammer Ultraflex Packaged Drives. With the Ultraflex static power conversion system, there are *no* bearings to lubricate or replace when worn. There are *no* commutators to service, *no* brushes to replace periodically. There are *no* shafts to align, *no* couplings to maintain, *no* inertia loads to balance. There are *no* forced ventilation fans, *no* filters to clean or change. Ultraflex circuit components are inherently rugged and trouble-free.

Cutler-Hammer Ultraflex Packaged Drives are available in two forms . . . Ultraflex E—the 1 to 40 hp, low cost electronic type adjustable speed drive and Ultraflex M—the 1 to 200 hp, ultra-efficient magnetic amplifier type adjustable speed drive. Both forms come complete with the Ultraflex control unit, heavy-duty D-c drive motor, and operator's control station. Standard Ultraflex Packaged Drives provide an 8 : 1 speed range with wider ranges available upon request. Cutler-Hammer also provides a complete engineering service which will custom-design a static powered adjustable speed packaged drive to meet your specific requirements. Write today on your company letterhead for the new descriptive bulletins EN64-Ultraflex E and EN65-Ultraflex M. CUTLER-HAMMER Inc., 1436 St. Paul Ave., Milwaukee 1, Wisconsin.

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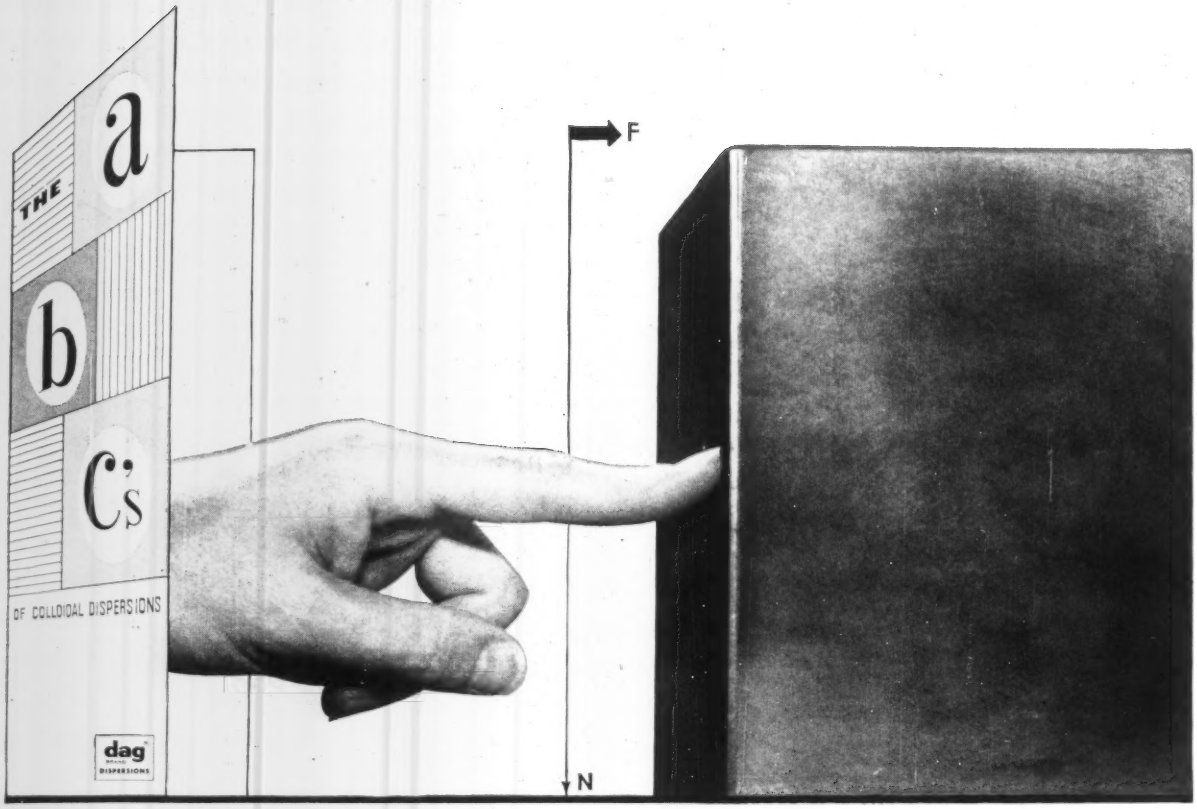

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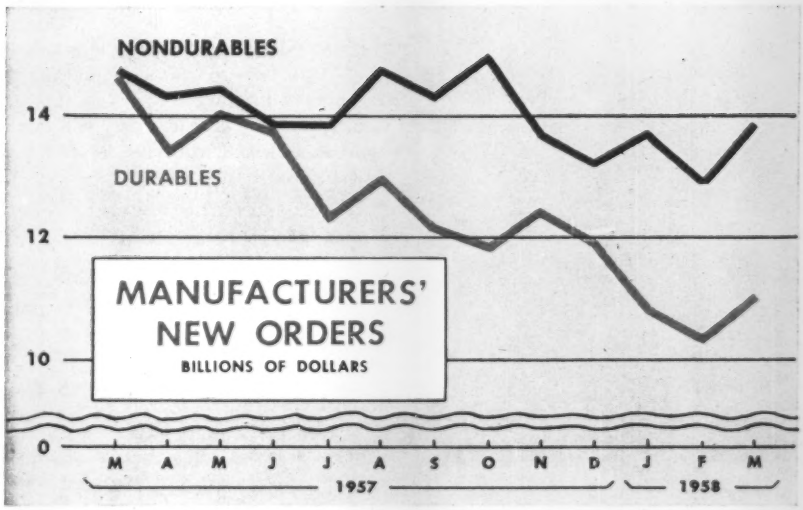
The Decline Flattens Out

ENCOURAGED BY some cheerful mid-Spring reports, many business men do not expect over-all business activity to dip much more, but few look forward to any significant increase in the next few months.

Here is how the outlook shapes up at present: Retail trade will slip during the Summer, and total dollar volume will be down slightly from last year. Although manufacturers' sales will continue to improve during the third quarter, inventory reductions will go on. Both consumer and wholesale prices will drop slightly in the coming months.

The rate of unemployment in the third quarter will be close to that of the past three months, remaining considerably higher than a year ago.

Although industrial output will edge up somewhat in June, it is probable that it will return to the April level in July, as in the 1953-54 business downturn. Capital expenditures will not show any sign of improvement until well after a substantial gain in consumer spending, and corporate profits will remain below year-ago levels. In the third quarter, the gross national product, or total output of goods and services, will be about $420 billion, down 5 per cent from the similar 1957 level.



NEW ORDERS RISE: *Estimates showed that defense spending pushed manufacturers' orders up somewhat in April and May. (Source: U.S. Department of Commerce).*

Retailers Disappointed

"Buy Now" sales drives in many areas drew few shoppers in late April and early May, indicating that consumers plan to postpone much of their spending until prices stop rising and their needs increase. This was especially true of major appliance and automobile purchases. Retailers on the Eastern seaboard ascribed this lack of a Spring upsurge largely to bad weather.

Buying for Mother's Day helped sales in some cities, especially Philadelphia, Atlanta, and Portland, Ore., where over-all Mother's Day sales matched year-earlier levels. During the first part of May, storekeepers reported increased interest in women's fashion accessories, rainwear, and better-priced cotton dresses. Although there was a moderate rise in purchases of women's Summer sportswear and swimsuits, volume lagged behind last year.

Abandonment of fair-trade policies helped sales of some smaller appliances in some cities, particularly Boston and New York, but over-all appliance turnover continued below that of a year ago. While a slight seasonal rise in purchases of air-conditioners and fans did occur, sales were well below 1957. This was also the case with outdoor furniture, building materials, garden implements, and hardware, but the gap between this year and last was not so wide.

Further evidence that gloomy business news has affected the consumer was found in the April survey of consumer buying plans conducted by the National Bureau of Economic Research. A study of some 25,000 households indicated that fewer consumers now plan to purchase cars and major appliances over the next six months than in last October's survey.

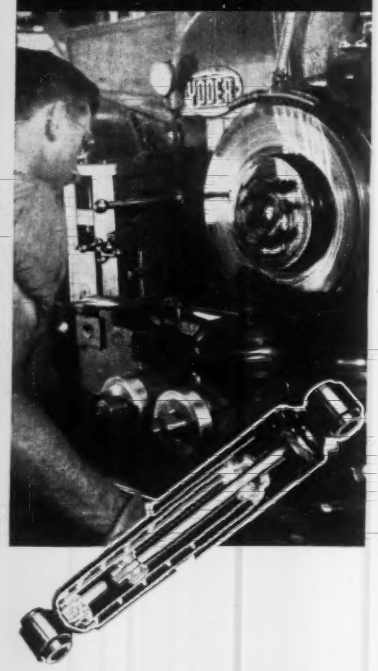
The hoped-for Spring upsurge in sales of new passenger cars showed no sign of becoming a reality, according to scattered reports from 66 DUN & BRADSTREET offices throughout the country. Extensive sales promotions helped volume in some cities, such as Cleveland and Chicago, but total sales in late April and early May were again noticeably below a year ago. Spot checks show that consumer purchases of tires for replacement rose appreciably—perhaps another sign that consumers are planning to make do with present models.

Instalment Credit Down

A decline in auto loans accounted for nearly all the drop in new consumer instalment credit extended in March. Following an almost steady rise since early 1954, total instalment credit outstanding in March fell for the second consecutive month, but it still exceeded the year-ago total, according to the Federal Reserve Board. Other consumer-goods paper showed little change from February to March.

Further increases in prices on food and services were responsible for another rise in the Consumers' Price Index in April, according to the United States Bureau of Labor Statistics. The index climbed 0.2 per cent to 123.5

Monroe Shock Absorbers rely on Precision Performance of YODER TUBE MILLS



After 15 years of continuous operation the Yoder Type-M Electric-Resistance Weld Tube Mill shown here, is still producing precision tubing for the Monroe Auto Equipment Co., Monroe, Michigan. Yoder produced tubing is the basic component of the famous "Monro-Matic" shock absorber. Measuring 2 1/64" outside diameter (plus several other sizes) the tubing is made from 22 gauge strip in one continuous operation . . . it is automatically cold-roll formed, welded and cut to pre-determined lengths.

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5531 Walworth Ave. • Cleveland 2, Ohio

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ENGINEERING YODER MANUFACTURING **PIPE AND TUBE MILLS** (ferrous or non-ferrous)

(1947-49=100) and will probably continue to rise until increased quantities of fresh produce and meat are available some time in June. Food prices are still influenced by tight meat supplies and the effects of the bad growing weather in some areas.

It is likely that costs of appliances and furniture will ease, but apparel prices will continue at present levels. The over-all index in April was about 20 per cent higher than it was ten years ago.

It should be remembered that retail prices are among the last indicators to be affected in times of business downturn. Once they do slide, they will continue to fall well after most other indicators have begun to recover.

Rise at Wholesale

The seasonal rise in wholesale trade occurred as usual in early May, but year-to-year declines continued to prevail. Bookings for men's and women's Summer apparel, air-conditioners, and outdoor furniture were stepped up.

Textile mills were pleased with the activity in woolens, carpet wools, and cotton gray goods, and expected both sales and prices to continue to rise. The improvement in sales was most evident in Boston, Philadelphia, and some Southern markets.

The gloom in the aircraft manufacturing industry was partly dispelled in April and early May by increased defense and commercial orders. Although most of the increase in total dollar value of new orders written by manufacturers in March came from nondurable goods orders, the total was somewhat boosted by the improvement in the aircraft industry. The increase in over-all sales in March was less than seasonal.

Following three successive months of improvement, machine tool orders fell 23 per cent in April from March. Most machine-tool builders expect the long downward trend in new orders that began in the Fall of 1956 to continue through the Summer months.

Inventory Reduction

Although business reduced the book value of its inventories by 2 per cent during the first quarter from the end of December, and the end of March level was down 2 per cent from last year, the ratio of inventories to sales was still as high as at the beginning of the current business downturn. It is likely inventory cutbacks will continue through the second and third quarters.

The 7 per cent decrease from April 1 to May 1 in dealer inventories of new passenger cars was primarily the result of production cutbacks. Manufacturers were so concerned about large stocks and lagging sales that they reduced April output to the lowest level for that month since 1948. Production in early May continued to edge downward. Some manufacturers are banking on a good consumer reception for the 1959 models to help raise production schedules in the fourth quarter of this year.

Plans for earlier than usual model changeover periods by most auto producers has led many steelmen to anticipate a marked improvement in new orders for steel sheets in the Summer. Increased bookings for structural shapes from the construction industry helped lift the steel operating rate in early May. Some mills expect the rate to hover around 50 per cent of capacity through the end of the second quarter and improve gradually in the third.

Throughout April and early May the

WEEKLY BUSINESS SIGNPOSTS

	Latest Week	Previous Week	Year Ago
STEEL INGOT PRODUCTION..Ten thousand tons (a)	148	141	221
ELECTRIC POWER OUTPUT..Ten million KW hours (b)	113	113	115
BITUMINOUS COAL MINED..Hundred thousand tons (c)	72	62	96
AUTOMOBILE PRODUCTION..Thousand cars and trucks (d)	103.4	95.9	150.5
DEPARTMENT STORE SALES..Index 1947–1949=100 (e)	127	138	129
BANK CLEARINGS, 26 Cities..Hundred million dollars (f)	23.1	21.6	23.4
BUSINESS FAILURES..Number of failures (f)	327	279	264

SOURCES: (a) Amer. Iron & Steel Inst.; (b) Edison Elect. Inst.; (c) U.S. Bureau of Mines; (d) *Automotive News*; (e) U.S. Bureau of Labor Statistics; (f) DUN & BRADSTREET, INC. Steel data for the fourth week of May; bank clearings for the third week; all others for the second week.

means a 4,500 cockroach hazard

The prolific German Cockroach reproduces 4,500 times a year. It's a troublesome hazard wherever food is served. Resists ordinary insect sprays. And worse, hides from light so that swarms can build up before discovery.

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Have no worries about Vaposector. It's safe. No danger of food contamination or odor when used as directed.

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*COMMERCIAL CREDIT COMPANY subsidiaries, during each of the last several years, advanced over one billion dollars to manufacturers and wholesalers to supplement cash working capital. During these years, total volume of finance subsidiaries amounted to over three billion dollars. CAPITAL AND SURPLUS OVER $200,000,000.

output of coal, oil, and lumber remained noticeably below similar 1957 levels. In the first part of May electric power production was close to last year's.

The Federal Reserve Board's Index of Industrial Production stood at 126 (1947-49=100) in April, compared with 128 in March and 137 in the similar month last year, after seasonal adjustment.

Expenditures for new plants and equipment are expected to drop 12 per cent in 1958 from last year, to about $34 billion. The recent McGraw-Hill survey indicated that a further decline is probable in 1959, and that expenditures will not equal those of 1957 until 1961, especially in mining and manufacturing, but spending for research and development will rise steadily.

Housing Up

Spurred by easier mortgage money and favorable weather in some areas, housing starts in April climbed to an annual rate of 950,000 from 880,000 in March, but they were somewhat below the 962,000 rate of last April.

Some economists and business men are still pessimistic over the housing outlook for 1958 despite the April rise. They expect consumers to hold back on home buying because of the uncertainty of business as a whole and high housing prices. On the other hand, the Federal National Mortgage Association reports encouragingly that in May commitments to buy mortgages on houses on which construction had not been started rose steadily from week to week. In addition, April applications for Federal Housing Administration insurance on new houses were about 25 per cent higher than in March.

Increased spending on highways and public housing helped boost the total dollar value of construction outlays during the first four months of this year slightly over the similar 1957 level. Industrial and commercial building continued below a year ago.

Factory Jobs Down

Although increased activity in construction, lumbering, and agriculture raised the total number of employed to 62.9 million in April, factory jobs fell more than usual for that time of the year. Payrolls were most noticeably reduced in the automotive, steel, and industrial machinery industries.

While the total number of jobless declined in April for the first time in five

Vera, cashier, validates daily currency receipts—

Joe, of Production, counts the job tickets —

Mrs. Green, of Accounting, counts and endorses checks—

Sally, of Sales, counts and codes advertising leads —

Harry, of Shipping, counts codes, dates delivery slips—

Work saver for all departments!

The PB Tickometer is useful for a variety of counting chores in all departments of your office or shop. It dates or otherwise imprints, too!

It may be used a few minutes a day for counting sales slips—a few more minutes counting production slips or coupons — or even 8 hours a day, counting up to $90,000 in used dollar bills, as in one Federal Reserve Bank!

It also marks, numbers, cancels, dates and codes at speeds from 400 to 1,000 pieces a *minute*—eight times as fast as most experienced hand operators. Can be set for predetermined counts, or will register partial amounts or totals.

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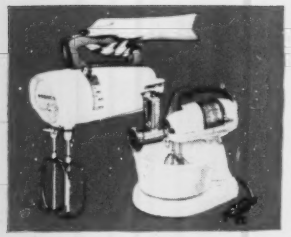
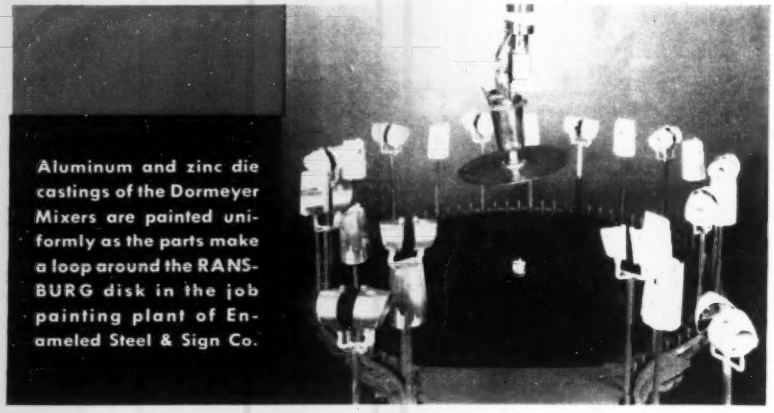


DORMEYER MIXERS
are painted with
RANSBURG
NO. 2 PROCESS

. . . and high quality standards
are easily maintained with Electrostatic Spray Painting



Aluminum and zinc die castings of the Dormeyer Mixers are painted uniformly as the parts make a loop around the RANSBURG disk in the job painting plant of Enameled Steel & Sign Co.

● Enameled Steel & Sign Co. is able to serve many customers like Dormeyer, for their Chicago job painting plant is equipped with modern and efficient finishing facilities for producing high quality, high volume painting.

Electrostatic spray painting has practically replaced all other methods here, for the flexibility and near 100% efficiency of the Ransburg No. 2 Process enables Enameled Steel to serve many manufacturers of a wide variety of products. And, this with a comparatively small labor crew!

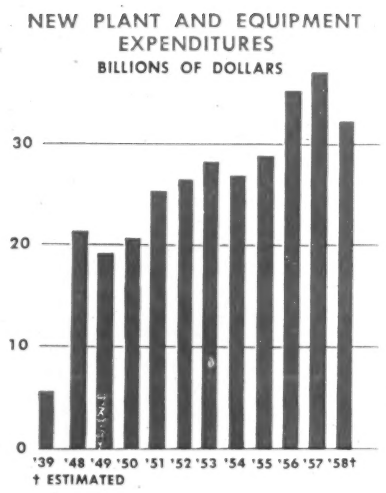
Today—with Ransburg No. 2 Process—Enameled Steel is realizing more than 60% paint savings over former hand spray. Rejects have been cut to less than 1%, for the Ransburg No. 2 Process applies a uniform, high quality finish never before obtainable with old-fashioned painting methods.

THINK OF WHAT 60% PAINT SAVINGS WOULD MEAN IN YOUR OWN FINISHING DEPARTMENT

Whatever you manufacture, if your production justifies conveyorized painting, you should look into the savings and improved quality which can be yours with Ransburg Electro-Spray. Let us tell you about the complete Ransburg services, including the test painting of your products in our laboratories.

Ransburg **ELECTRO-COATING CORP.**
Indianapolis 7, Indiana

RANSBURG



FEWER NEW PLANTS: *A sizable drop from last year is expected in plant outlays in 1958. The decline will continue in 1959.*

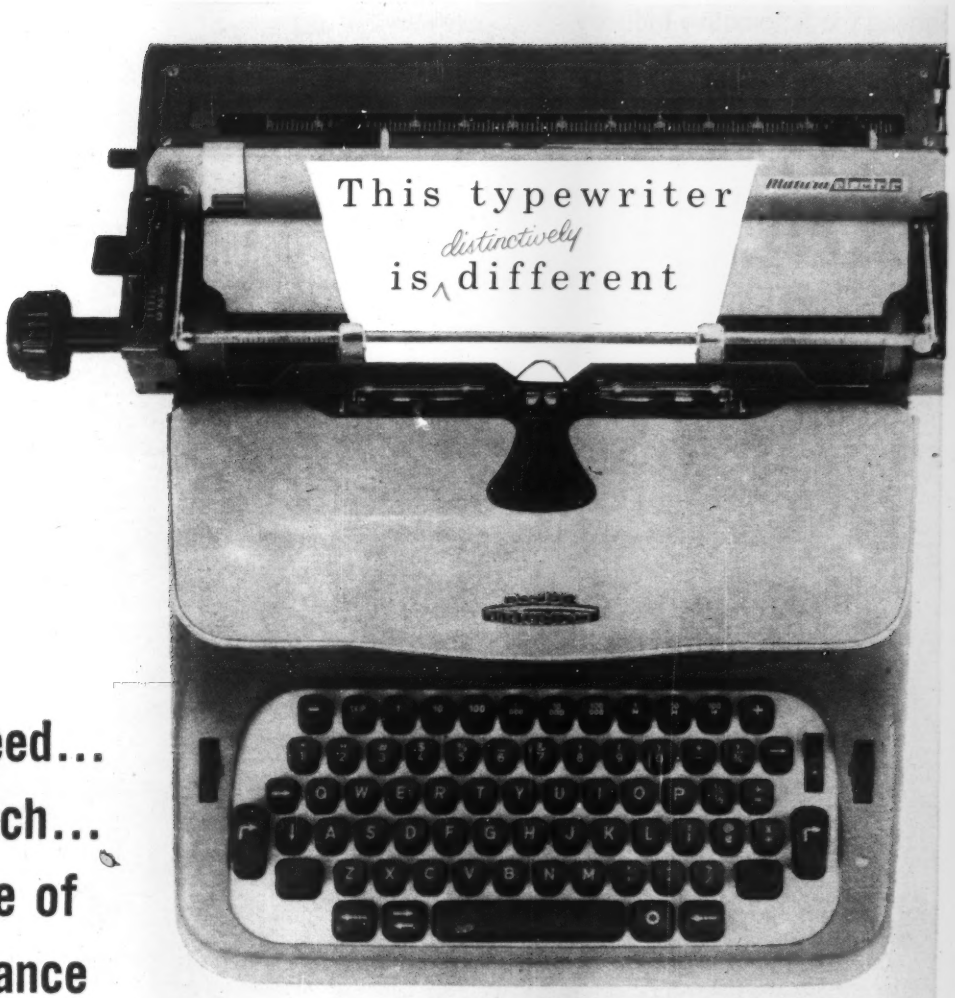
months, the decrease was much smaller than is customary in April, leading some business men to believe that the unemployment situation was not actually much better. As high school and college graduates come into the labor market, the rate of unemployed in relation to the total labor force will probably rise noticeably in June.

Because of rising farm income, climbing unemployment compensation payments, and improved Social Security and veterans benefits and despite high unemployment, personal income in March and April rose somewhat. Wages and salaries dipped in April, but the month-to-month decline was the smallest since the onset of the recession.

Despite many unfavorable reports on corporate profits for the first quarter, stock prices rose in April and early May. Perhaps this reflected a more hopeful business outlook, following favorable reports in some sectors of the economy.

Bank loans to business declined in April and early May. Total loan volume is expected to be somewhat lower in 1958 than in 1957. Although the overall return on funds will be reduced by the recent downtrend in interest rates, the large amount of loans now carried at last year's high rates will hold the rate of return higher than the interest level likely to prevail this year.

This report was prepared in the Business Economics Department, DUN & BRADSTREET, Inc., by John W. Riday.



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SINCE 1843 THE EAGLE-PICHER COMPANY, GENERAL OFFICES: CINCINNATI 1, OHIO

Business Pessimism "Bottoms Out"

Here's what 1,519 representative business men across the country think is in store for their businesses in the third quarter.

IN LOOKING at their companies' prospects for the third quarter of 1958, 40 per cent of the executives interviewed in DUN & BRADSTREET'S latest compilation of business men's opinions expected their sales to equal those of a year ago, 41 per cent foresaw increases, and 19 per cent anticipated declines.

Fewer business men foresaw year-to-year sales declines in this survey than in the preceding one, but the percentage was twice that of a year ago (see table). Except for the preceding survey, this one is the most pessimistic since 1954.

Manufacturers of nondurable goods were the most optimistic of the respondents about their third-quarter sales prospects. The number looking forward to increases over a year ago was more than three times the number anticipating declines.

Half of those interviewed thought their profits in the third quarter would equal those of last year, 29 per cent hoped for an increase, and 21 per cent expected a decline. Profit reductions were most often anticipated by manufacturers of durable goods. Nondurable manufacturers were the least apprehensive. A year ago, makers of both durable and nondurable goods were cheerier than wholesalers or retailers.

The percentage of durable goods manufacturers expecting a drop-off in new orders was twice that of producers of nondurables, but 38 per cent hoped for third-quarter gains over a year ago.

It was the consensus of 80 per cent of the executives that their third-quarter selling prices would be unchanged from a year ago. In the third-quarter survey last year, 65 per cent foresaw no year-to-year change, and 32 per cent expected a boost.

Business men will probably continue to hold their inventories below those of the third quarter of 1957. Among producers of durables, the "downs" outnumbered the "ups" almost two to one.

Of the retailers interviewed, 58 per cent planned no year-to-year change in inventories during the third quarter, and 25 per cent anticipated reductions.

Nearly 80 per cent of the respondents expected to need at least as many workers in the third quarter of 1958 as a year ago. Wholesalers most often indicated plans to maintain levels.

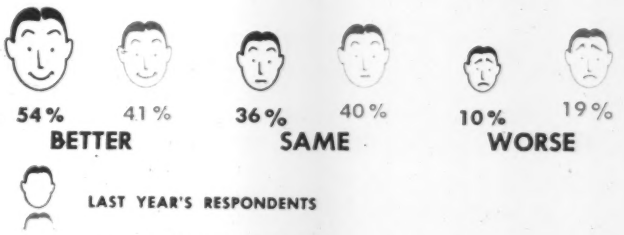
More durable goods producers than any other business men expected to have fewer workers. Eighty per cent of the retailers foresaw no change, 8 per cent expected an increase, and 12 per cent a decline.

It should be kept in mind that results of this survey must be interpreted in relation to the results of similar former surveys. The answers are not a forecast of future developments, but an indication of the feelings of a representative group at the time. Subsequent events may influence the thinking of the respondents.

Prepared by John W. Riday, Business Economics Department.

SALES

HOW WILL THIRD-QUARTER SALES THIS YEAR COMPARE WITH A YEAR AGO?

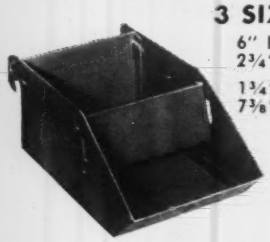


THIRD-QUARTER EXPECTATIONS AS COMPARED WITH A YEAR EARLIER

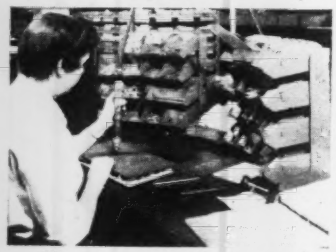
Percentages of opinions expressed comparing 1958 with 1957 in black; percentages comparing 1957 with 1956 in color

	ALL CONCERNS						MANUFACTURERS						WHOLESALERS						RETAILERS					
	Increase		Unchanged		Decrease		Increase		Unchanged		Decrease		Increase		Unchanged		Decrease		Increase		Unchanged		Decrease	
Sales	41	54	40	36	19	10	41	57	39	35	20	8	43	50	40	38	17	12	35	52	43	36	22	12
Profits	29	36	50	54	21	10	29	40	48	51	23	9	27	32	53	56	20	12	29	33	52	56	19	11
Prices	13	32	80	65	7	3	12	31	81	67	7	2	14	36	79	59	7	5	14	23	77	74	9	3
Inventories	16	24	63	60	21	16	16	26	64	62	20	12	18	23	63	59	19	18	17	23	58	57	25	20
Employment	10	10	79	86	11	4	12	14	75	81	13	5	7	6	86	92	7	2	8	6	80	91	12	3
New Orders	..	..	..	..	..	..	38	45	46	47	16	8	..	..	..	..	..	..	..	..	..	..	..	..

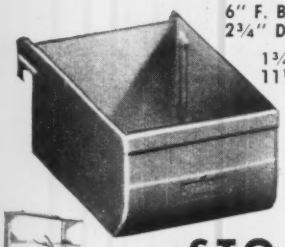
BATHEY
bin equipment
3 SIZES
6" F. B. by 2¾" D.
1¾" to 7⅜" W.



FLO-BINS
for small parts assembly



all parts at arm's reach
5 SIZES
6" F. B. by 2¾" D.
1¾" to 11⅛" W.



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Failures . . Latest trends in business casualties

Annual Rate Dips in April

IN A NORMAL seasonal dip, business failures were down 2 per cent in April to 1,458, but this total was the second highest for any postwar month. Up 24 per cent from April last year, more concerns failed than in the comparable month of any year since 1933.

However, when adjustment is made for the rising commercial population in the past 25 years, the current casualty rate remains moderately below 1939 and little more than one-half as severe as in 1933. DUN'S FAILURE INDEX shows 59.7 failures occurring per 10,000 listed enterprises. This apparent annual rate, seasonally adjusted, dipped slightly from March, but ran considerably ahead of 48 in April a year ago.

Contrary to the seasonal downturn in number of casualties, April liabilities climbed to a new high of $84 million, 17 per cent above March and 47 per cent above April last year. Failures involving liabilities of $100,000 or more largely accounted for these increases. Long-range comparisons with liabilities in earlier years require adjustment for changes in the value of the dollar and the aggregate business volume transacted.

Among individual lines of trade and industry, month-to-month trends varied considerably. But a clearer, more consistent picture develops from comparisons with April 1957. Increases of 21 to 35 per cent pushed tolls above last year's level in all functions except services and in nearly all individual lines of business. Manufacturers suffered most severely. Casualties in the lumber and steel industries reached the highest totals in 25 years.

All retail trades reported more failures than a year ago, with the sharpest increases in the automotive group and furniture, furnishings, and appliances. Stores selling furniture or furnishings suffered more than appliance dealers. Construction failures ended a four-month dip from year-ago level by climbing up 22 per cent over April, 1957.

Geographically, casualties exceeded 1957 in all regions except the agricultural West North Central states.

FAILURES BY DIVISION OF INDUSTRY

(Current liabilities in millions of dollars)	Number 4 Months 1958	Number 4 Months 1957	Liabilities 4 Months 1958	Liabilities 4 Months 1957
MINING, MANUFACTURING	965	825	102.1	83.6
Mining—coal, oil, misc.	33	24	4.9	5.4
Food, kindred products	78	65	6.2	4.8
Textile products, apparel	189	182	11.1	12.8
Lumber, lumber products	168	151	13.6	8.1
Paper, printing, publishing	57	43	3.6	1.8
Chemicals, allied products	19	23	1.0	2.1
Leather, leather products	48	26	7.4	3.6
Stone, clay, glass products	22	21	2.6	1.1
Iron, steel, and products	61	39	5.8	19.8
Machinery	102	88	12.5	10.5
Transportation equipment	25	25	11.8	2.1
Miscellaneous	163	138	21.6	11.6
WHOLESALE TRADE	522	433	27.4	29.5
Food and farm products	117	100	6.0	7.8
Apparel	30	18	1.6	1.1
Dry goods	17	10	0.4	0.2
Lumber, bldg. mats., hdwre.	68	53[R]	5.3	2.8[R]
Chemicals and drugs	12	21[R]	0.2	0.9[R]
Motor vehicles, equipment	27	24[R]	0.6	1.3[R]
Miscellaneous	251	207	13.2	15.4
RETAIL TRADE	2825	2432	91.0	66.5
Food and liquor	398	394	9.2	7.5
General merchandise	112	110	4.6	5.8
Apparel and accessories	494	431	14.7	8.6
Furniture, furnishings	422	372	18.1	13.7
Lumber, bldg. mats., hdwre.	190	162	7.0	5.3
Automotive group	384	263	15.8	6.7
Eating, drinking places	510	435	13.8	11.5
Drugstores	47	55	1.0	1.8
Miscellaneous	268	210	6.8	5.5
CONSTRUCTION	764	734	40.1	38.6
General bldg. contractors	320	290	22.8	22.3
Building subcontractors	402	394	14.7	12.4
Other contractors	42	50	2.6	3.9
COMMERCIAL SERVICE	394	381	24.6	14.3
TOTAL UNITED STATES	5470	4805	285.3	232.4

Liabilities are rounded to the nearest million; they do not necessarily add to totals.
[R]Revised.

THE FAILURE RECORD

	April 1958	March 1958	April 1957	% Chg.†
DUN'S FAILURE INDEX*				
Unadjusted	63.3	64.8	51.6	+23
Adjusted, seasonally	59.7	60.0	48.2	+24
NUMBER OF FAILURES	1,458	1,495	1,175	+24
NUMBER BY SIZE OF DEBT				
Under $5,000	189	173	149	+27
$5,000–$25,000	664	692	584	+14
$25,000–$100,000	422	477	338	+25
Over $100,000	183	153	104	+76
NUMBER BY INDUSTRY GROUPS				
Manufacturing	257	281	190	+35
Wholesale trade	139	141	115	+21
Retail trade	737	750	580	+27
Construction	209	202	172	+22
Commercial service	116	121	118	−2
LIABILITIES (in thousands)				
CURRENT	$83,977	$71,555	$57,103	+47
TOTAL	86,622	71,699	57,347	+51

*Apparent annual failures per 10,000 enterprises listed in the DUN & BRADSTREET *Reference Book*.
†Percentage change, April 1958 from April 1957.

In this record, a "failure" occurs when a concern is involved in a court proceeding or in a voluntary action likely to end in loss to creditors. "Current liabilities" here include obligations held by banks, officers, affiliated and supply companies, or the governments. They do not include long-term publicly held obligations.

This report was prepared in the Business Economics Department, DUN & BRADSTREET, INC., by Rowena Wyant.

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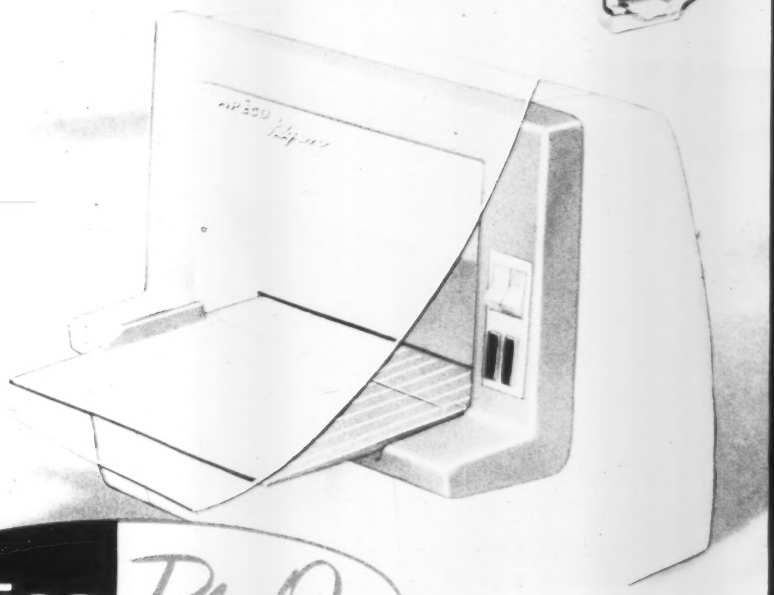

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*Mylar is DuPont's registered trademark for its brand of polyester film.

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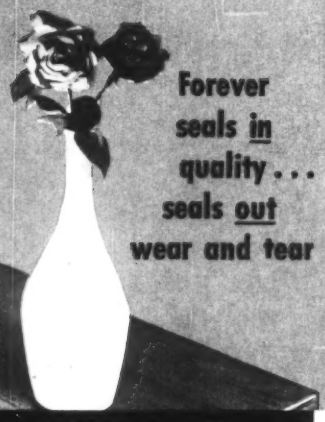

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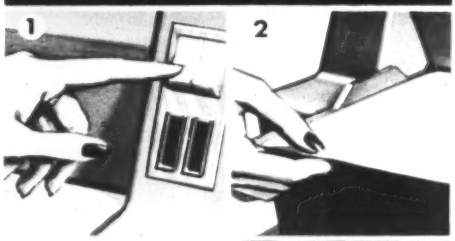

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VOICE OF INDUSTRY

What is the future of atomic-generated power and how soon will it be in general use? How does international trade actually affect the over-all U.S. economy? Does it help to raise tariffs in a recession? How can industry and Government apportion research to avoid overlap of effort? Here, presidents of three key companies express their views.

More Reactors to Generate Power

FLOYD B. ODLUM, *president, Atlas Corp., before the San Francisco Society of Security Analysts.*

Atomic energy will be needed to supply growing power needs in this country. Our population is expanding rapidly, as is the amount of power used per capita. Reactor costs are fast coming down, and as they come down, the use of atomic reactors to generate electricity will increase. By 1975, most of the new electric generating plants being built in this country will be atomic powered. By that time, too, we will have an atomic-powered Navy.

These large-scale users of uranium will take all the uranium that can be spared from the weapons program. Unless we continue to find new deposits, we face a shortage of uranium before the end of the 1960's.

Power from controlled fusion will not affect the development of atomic energy. Controlled fusion is several decades behind atomic energy in its scientific aspects alone and its commercial application is infinitely more difficult. This century will probably not see the economic use of power from fusion.

International Trade Bolsters Economy

PHILIP CORTNEY, *president, Coty, Inc., and chairman, United States Council of the International Chamber of Commerce, before the New Jersey World Trade Conference.*

A severe depression-caused reduction in our imports would wreak havoc throughout the free world. And yet, a fear commonly expressed is that in times of low business activity in the United States, imports will flood domestic markets and make the downturn worse.

In actual fact, however, this has not happened in any economic downturn since the first world war. In all but one case our surplus of exports over imports increased as we moved into a period of business decline so that foreign trade had

Do you have a loss in some stock?

Nearly every week, we get letters from investors who ask if they should sell some particular stock at a loss — or hang on in hopes that the price will come back to about what they paid for it.

Sometimes we suggest that they keep it.

Sometimes we suggest that they sell it.

Why?

Because every such question is a case unto itself . . . Because, basically, each one boils down to a brand new problem of investing.

But given a man's objectives, given the sum he could realize from the sale, the problem becomes one of comparing the prospects for the stock he owns with the outlook for all other stocks suitable to his investment objective.

A fair-sized job, true.

It involves ready access to any number of facts about sales and earnings, about policies, products, and plans . . .

Relative comparison of performance, both past and present . . .

Careful consideration of company managements, industry prospects, business in general, the world situation as a whole.

The average investor just doesn't have that much information — not on hundreds of stocks anyway.

But we have a Research Department — one of the biggest and best in the business — that does have that kind of data at hand, and their opinion about selling (or buying) any security is yours for the asking.

And while you're about it, you might like to have a current review of your complete portfolio, a detailed analysis based on your own particular objectives.

We will be happy to furnish that, too, if you'll just write—

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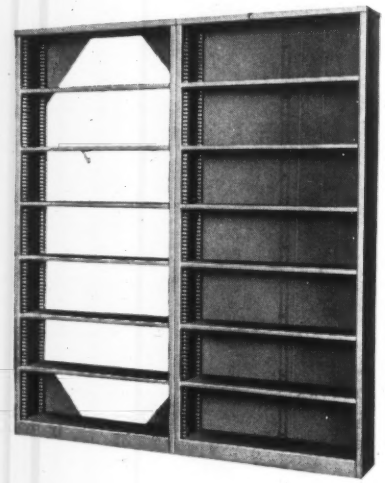
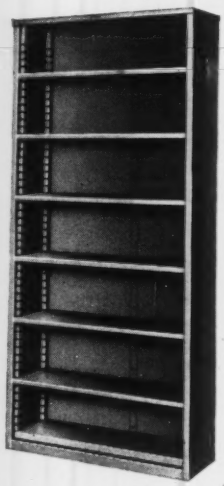
Borroughs Library Shelving is available in single or double face, open or closed back units, 42", 84" and 90" high. Sliding shelves have 3/4" vertical adjustment that requires no bolting. All units 36" wide outside, with 9 1/4" shelf depth inside.





Borroughs Bookcases come in 4 heights — 29" 42", 78", 84". Sliding shelves, which are adjustable without bolting, have 3/4" adjustment on the 29" and 42" units, and 1 1/2" adjustment on the 78" and 84" units. All units are 36" wide outside, with 10 1/16" shelf depth.

Whether you are contemplating the purchase of library shelving or bookcases, be sure to see the Borroughs line the next time you visit your office equipment dealer. Ask him to show you the Borroughs sliding Book Stop and the many other features that Borroughs offers. Regardless of the unit you select, you have your choice of 4 modern finishes — Spring Green, Dark Green, Gray, Fall Tan, in electrostatic baked-on enamel. Over 3500 dealers display Borroughs products in the United States and Canada.

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a positively stimulating effect on employment and the economy in general.

The right trade policy for the United States is not the complex problem it is often made out to be. We are the most powerful and productive nation in the world and have no need to fear a free market.

If we turn our backs on a sound trade policy, the result is certain to be continued monetary disorder and the eventual breakdown of international cooperation. Thus, passage of a Trade Agreements Extension Act without crippling amendments is absolutely essential to ourselves and our allies. [Another] necessity is for greater efforts to enlarge the international flow of investment capital. Here, the need is to encourage nations anxious to attract private foreign investment to adopt sound attitudes and laws.

Government Role in Research

FRANCIS C. BROWN, *president, Schering Corp., at the 51st annual meeting of the American Pharmaceutical Manufacturers' Association.*

Everyone is talking about science and research these days. Each year larger appropriations are being made by Congress to finance research in the health area. Our industry, too, is spending at an ever-increasing rate to support research, and last year spent $130 million or about 7 per cent of our sales dollars conducting research for products. By contrast, the Government last year spent $211 million on research through the National Institutes of Health.

There is a proper role for Government research, and this is support for research in the basic sciences both in Government laboratories and in private institutions. The proper role for industry is to apply these principles in discovering and producing products which have specific utility. Industry will do this without stimulation or direction. The desire for profit will be adequate stimulation.

Large appropriations alone do not insure good research or results, as the public has been led to believe. Not only is careful coordination required, but frequently time must pass before one scientist's discoveries find fertile soil in another scientific mind.

Short cuts with Recordak Microfilming

Latest reports on how this low-cost photographic process is simplifying routines for more than 100 different types of business . . . thousands of concerns

CHECKS CREDIT RATINGS FASTER

HATTIESBURG, MISS.

The Credit Bureau of Hattiesburg gives the stores it serves faster service and cuts its own costs by photographing the customer ledger cards of key stores in a Recordak Reliant Microfilmer. (6,000 cards recorded in less than 1 hour.)

With these film records ready for checking in a Recordak Film Reader, "rush" inquiries can be answered while customers shop. Sales clerk calls her credit manager, who phones Bureau – nothing could be faster. Another advantage: credit managers are spared thousands of phone inquiries from Bureau.

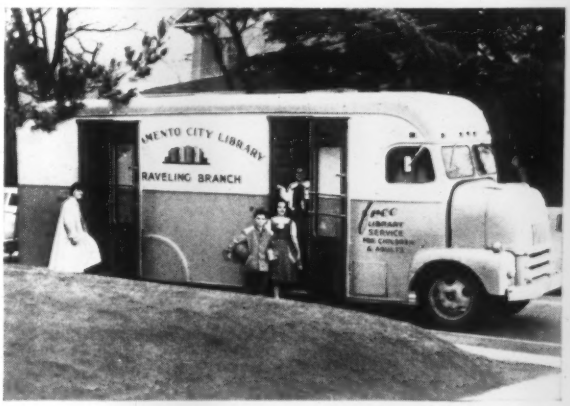
CURES BILLING HEADACHE

SIOUX CITY, IOWA

Getting bills out to more than 5,000 customers is only half the job it used to be for Toller Drug Company, operators of four Toller Rexall drugstores in this city.

Sales checks are photographed in high-speed Recordak Reliant Microfilmer and sent out to customer with bill, which lists only the sales check totals instead of describing each purchase. This cuts costs 50%, increases accuracy, lets Toller handle greatly expanded volume in half the time formerly spent. And customers find it much easier to recall charges with sales checks in hand.

Prescriptions are also microfilmed to increase protection, save space, and speed reference.



MAKES BORROWING EASIER

SACRAMENTO, CALIF.

Charging out more than 200,000 books per year is a relatively simple chore for the staff of Sacramento City Library's two bookmobiles. A button on the Recordak Junior Microfilmer is pressed – and borrower is on his way. Library has picture of borrower's card, book card and a date due card.

This does away with tedious record-keeping . . . ends line-ups . . . gets books back on shelves faster, too! Same system is used in Sacramento City Library's 5 branches. Over-all savings in clerical work are estimated at 30%.

See how companies like yours save

Free booklet gives broader picture of uses in business and industry. Write for "Short Cuts that Save Millions," or for more specific help have a Recordak Systems Man call. *No obligation whatsoever!*

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Type of business_____

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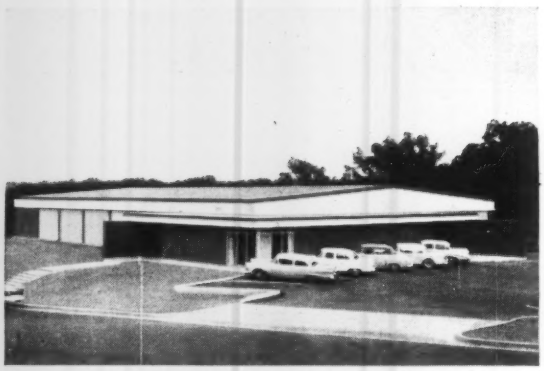

When a distinctive, prestige-type building is required, architectural styling can be achieved by combining Butler components with brick, block or any other building materials you choose.

When a dressed-up exterior is not necessary, Butler buildings can be covered economically with die-formed Butler metal panels that give lifetime protection—require little maintenance.

OF COLUMNS...

machines and materials for so little more Profile Butler buildings

Why invest precious capital in a cheap, low-cost building that may prove to be a costly place in which to operate your business?

With conventional post and beam construction costly floor space is taken up by columns. These columns also impose strict limitations on the way you can organize – use – the interior space.

But, in a clear-span, Low-Profile Butler building you can lay out production, traffic and storage areas with complete freedom. There isn't a single column from wall to wall – every foot of space is usable.

What about costs though? Low-Profile Butler buildings are a superior, more desirable type of construction. Consequently, they aren't cheap. But, they are such an economical way to build wide, clear-spans that they cost only a little more than the cheapest construction.

Mass-produced Butler components are available from stock. This saves routine engineering and custom fabrication. Pre-engineered to fit perfectly, they permit fast erection. You save weeks and months of costly planning and construction time.

For full details on clear-span, Low-Profile Butler buildings that give you more usable space and enable you to operate more efficiently—more profitably—contact your Butler Builder. He's listed in the Yellow Pages under "Buildings" or "Steel Buildings." Or write to us direct.

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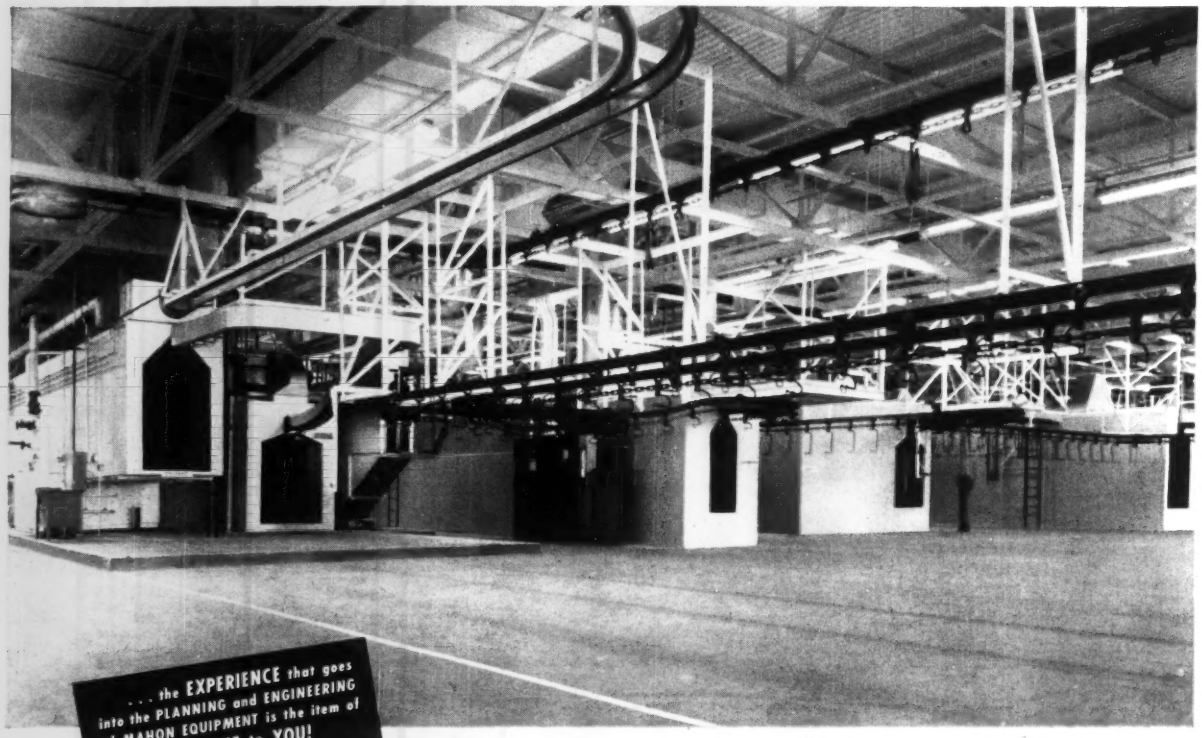

The illustration above shows part of the Complete Mahon Finishing System installed in a Ford Motor Company plant in Atlanta, Georgia.

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This particular finishing system was designed especially for painting hoods, fenders and miscellaneous small parts in an automobile plant.

When you have a finishing problem, or need new finishing equipment, you, too, will want to discuss methods, equipment requirements and possible production layouts with Mahon engineers . . . you'll find them better qualified to advise you on any type of specially engineered processing equipment.

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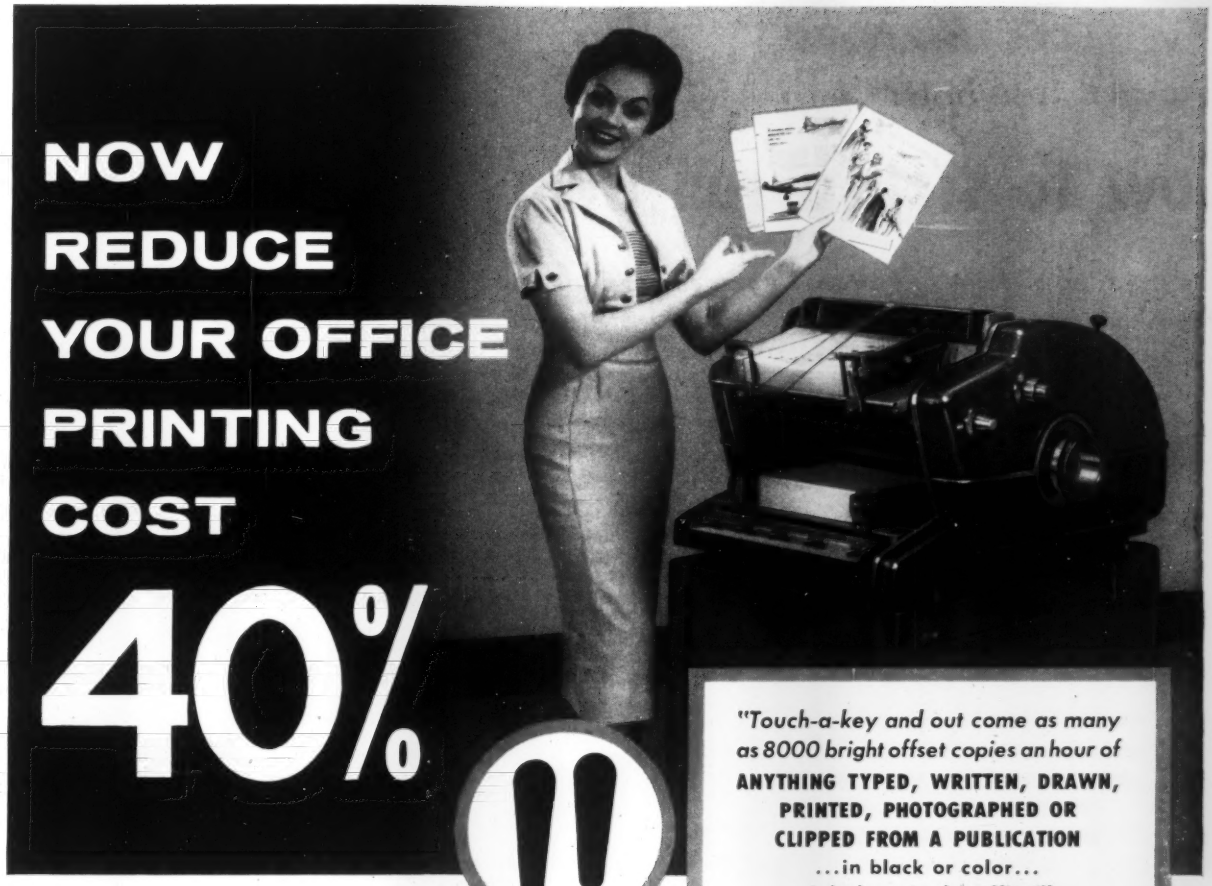
MAHON



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An actual case history on

How to stop a run-away incentive plan

from the files of John A. Patton, Management Engineers, Inc.

LIKE AN AUTO, an incentive plan is a useful device until it goes out of control; then it gets dangerous. More than a few firms have had their profits damaged—or destroyed—when management's grip has slipped from the steering wheel of an incentive program. It almost happened to the Almhurst Company*, the third largest company in its industry.

THE PROBLEM

Almhurst emerged from its founder's basement to grow to a status of six plants, 375 employees and $6,000,000 in annual sales. Supporting this growth was a policy of quality production and close management vigilance over costs. Piecework rates were set high enough to offer a real incentive to workers, yet low enough to be sound and economical.

But during the war years management's grip slackened; a union stepped in and pressured for changes in the piece rate pattern. Soon the entire incentive plan had been swerved off course. As costs surged, productivity and quality plummeted—and so did profits. Matching the union's pressures for bigger boosts in the pay scale was the Sales Department's demand for an end to price increases. Management's control continued to weaken. Quality control fell apart. Employees found they could hold back and falsify piecework tickets and "earn" excessive allowances for downtime, because of a lack of production scheduling. Work methods degenerated and the plant's workflow deteriorated to a zig-zag confusion.

THE ANSWER

After several futile attempts to halt the trend of fattening costs and thinning profits, management recognized that its own resources were insufficient for the task at hand. Company officials called the Patton Engineers for consultation.

After a study was made to determine the facts, a proposal was suggested to:

1. Train company and union men in job evaluation and in accepted time and motion study principles.
2. Conduct a foreman's training program stressing the principles of job evaluation and wage incentives.
3. Discard the present piecework system.
4. Install a standard hour incentive plan to obtain a fair day's production for a fair day's pay without reducing take-home pay.

THE ACTION

Management accepted the proposal readily. But then came the ticklish job of selling it to the union. A meeting was called between union and management officials. The Patton Engineer set forth the program carefully and in detail. Graphic evidence was presented to show that if employees gave full cooperation, wage levels could be maintained, and might even be increased. It was made clear that the alternate choice, rejection of the program, would endanger the company's existence and thus the existence of jobs.

The proposal was accepted by the union officials. A contract agreement was drawn up, voted on by the union members, and accepted.

One more preliminary step remained: to make doubly certain that each employee fully understood exactly what was to happen—and why. One method used was a letter sent to each employee explaining the program in detail.

At this point, all phases of the program were set in motion: job evaluation, foreman training, work scheduling, workflow changes, work simplification. Wherever possible, the Patton Engineer, instead of performing the work and making the changes himself, trained qualified people within the Almhurst organization to do it. This not only speeded up the work and kept consulting fees to a minimum, but provided a further guarantee of company-wide acceptance of the changes being made.

THE RESULTS

1. Savings had been estimated at $50,000 annually, but this proved to be a conservative figure.

2. Labor costs were reduced 12%.

3. Average take-home pay was actually maintained.

4. Thorough understanding of base rate structures and incentive principles by all supervisors enabled them to answer all questions to assure the maintenance of the program. By training them, they were made a part of the program to insure its success.

5. By being made a part of and participating in the program, the union was sold on it.

6. By having members of management work with the Patton Engineers, the company was in a position to maintain the program on their own.

SUMMARY

This is just one of many run-away incentives we have been able to halt. Our experience in revising incentive plans is widespread, and if you have an incentive problem, chances are we have dealt with it in the past.

A complete write-up of this case history is yours for the asking. It may help answer your problems.

John A. Patton
MANAGEMENT ENGINEERS, INC.
180 West Adams St.,
Chicago 3, Illinois
FInancial 6-6151

** The company name is fictitious, but all other facts are authentic.*

Heard In Washington

WASHINGTON, D.C.—Opponents of trade agreement extension will find it difficult to justify their position in the campaign this Autumn, Administration supporters are convinced. They will face charges of being isolationist and blind to the national interest. In every state and nearly all Congressional districts, it is contended, extension is definitely in the interest of the majority. Advocates of the Reciprocal Trade Act made a good case for their contentions that extension would benefit domestic employment, strengthen the defense against communism, discourage the trend toward neutralism, expand the market for American products, promote competition, bring lower prices to consumers, and in general enhance the prospects for peace.

It will be hard to deny the new and pressing needs growing out of the USSR's increased prestige because of its missile capabilities. How will candidates explain why they were willing to hamstring the United States in its efforts to meet Russia's economic offensive? Many observers believe that candidates have dug their own political graves with arguments against extension.

A welter of debate aimed at curbing abuses in labor unions has consumed a great deal of time in Congress. Despite the attention given the subject, nothing substantial in the way of final action is likely to be taken. Senator William F. Knowland (R., Calif.) was handicapped in his effort by the suspicion that he was chiefly concerned with his personal political advantage. The charge was strengthened by his previous opposition to considering legislation that had not been thrashed out in committee.

Senator John L. McClellan (D., Ark.), chairman of the committee that brought the need for new labor legislation to the attention of the country, showed courage and understanding, but did not display the leadership necessary to get real results.

But those who have supported restraints on unions and their leaders think that the debate has brought the issues forcefully to the attention of the people and will be reflected in the election returns. Some go so far as to predict that Senator Knowland may sweep California as Senator Taft did Ohio in 1952. Although rank-and-file union members are not vocal, they are convinced that their interests must be protected by legislation.

One striking change in attitude is very apparent. Formerly nearly all legislators had little to say that was critical of unions. Despite the revelations of the McClellan committee, that attitude persists, but a sizable minority is now speaking out. Rep. Graham A. Barden (D., N.C.), chairman of the Education and Labor Committee, was sharply criticized by fellow members for "bottling up" legislation that would be displeasing to union leaders. He was accused of failing to protect union members from exploitation by leaders in whose selection they had little or no voice. It is new to have a member of Congress charge his colleagues with contributing to "the enslavement by thugs, musclemen, and Marxists of many of our 17 million union members." The frequency with which reference is made in debate to "the increasing power of the labor monopoly" is significant. The forthcoming elections will determine what will happen in the way of labor legislation in the next Congress.

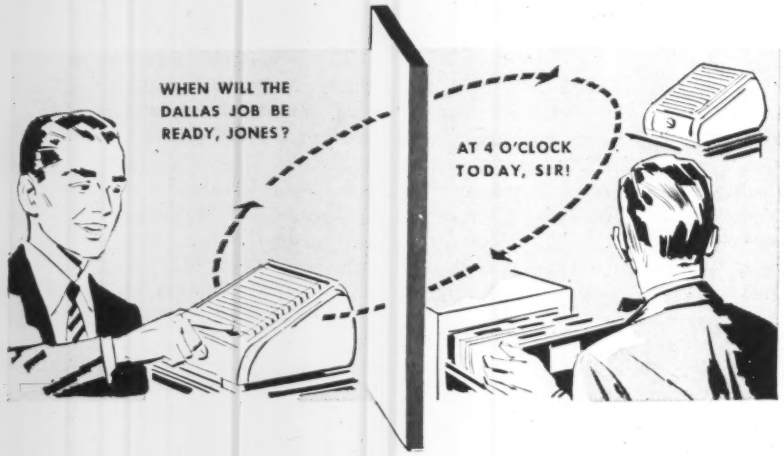
When a representative gathering of men active in business go the Administration one better in optimistic appraisals of the business outlook, it is capitalized on by legislators who feel that the recession will not become more serious. But the opposition is calling the views expressed at the Chamber of Commerce annual meeting wishful thinking. Delegates to the meeting were chary about anti-recession moves by Government and opposed most of the pending bills for additional Government spending. This pleased conservative members of Congress. Other members think the attitude of Chamber delegates will have little influence on public thinking. At any rate the Chamber meeting and its declaration of policies have provided material for debate.

Conservative legislators concur in charges that business men fail to support them. When the Senate was considering the Knowland labor proposals, organized labor sent its most capable men to Washington. They overlooked no opportunity to bring pressure to prevent action. Knowland and his following had no such support. That Senatorial group agreed with Theodore R. Iserman, New York manufacturer, who said: "It is time to stop assuming that those politicians willing to fight for free enterprise and truly free collective bargaining can preserve our way of life with niggardly help from us."

Most of the recommendations coming from business are getting short shrift on Capitol Hill. Those recommendations include: reduction of the corporation income tax, a low-rate nondiscriminatory general excise tax, mergers without prenotification, termination of veterans' benefits for nonservice disabilities, elimination of housing subsidies and the urban renewal program, modification of full employment legislation to include stability of dollar in the declaration of policy, no hamstringing of the right of petition, confinement of rural electrification to farm houses, and restrictions on the Tennessee Valley Authority.

Preparations for the big censuses are in full swing. Coming up are the censuses of manufactures, business, and housing. They will produce the greatest volume of economic information collected since the 1948-50 period. Questionnaires on the census of manufacture, business, and housing will be mailed in January 1959. Results will begin to be available by October. The census of manufactures will provide

How to get more working minutes per hour!



There's no need for personnel to waste valuable time walking back and forth for information and instructions. With Executone Intercom they just push a button and talk—*instantly!*

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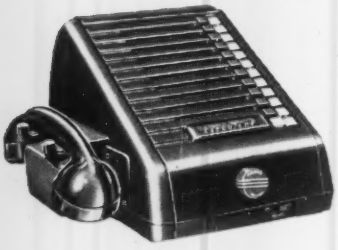

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precise data on a period of great industrial expansion. Preliminary work is also under way on the 1960 population census.

Eyebrows were lifted when Raymond J. Saulnier was selected to head the President's Council of Economic Advisers. "He is a good staff man—but," many said. Doubts have evaporated in the face of his performance. While he holds no press conferences and does not make speeches, his recommendations to the President are known to have been sound. Departure from them in a couple of instances later proved mistakes.

Usually candidates for Congressional office attract support by advocating reductions in taxes, but public sentiment has changed, wise politicians are saying. Candidates are now expected to find their constituents more knowledgeable about fiscal matters and likely to disapprove of measures that increase the deficit.

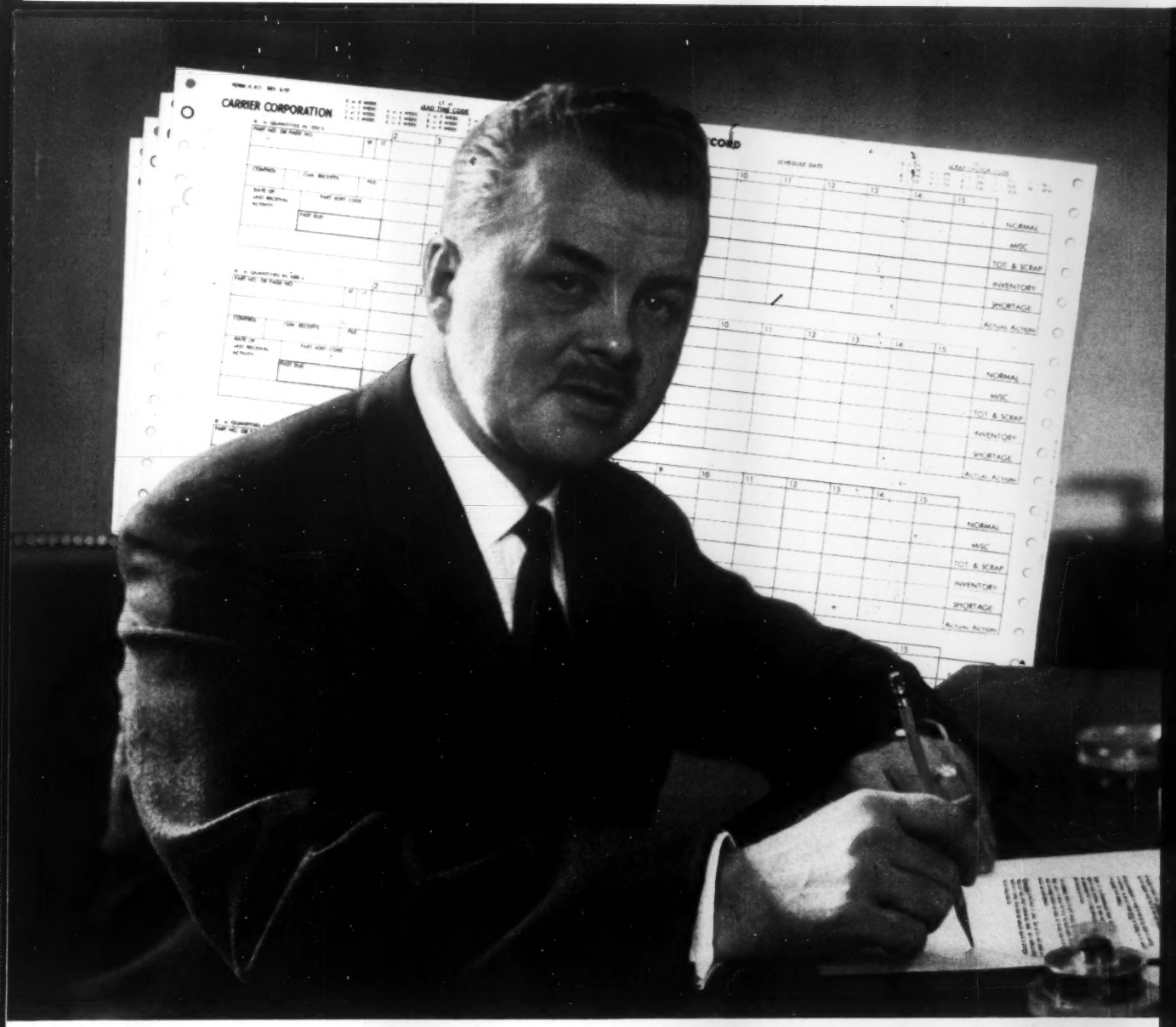
Fair trade dies hard. Hearings on the bill that would admittedly put discount houses out of business indicate more support for the measure than had been expected. The new bill by Rep. Oren Harris (D., Ark.) goes farther than the old McGuire Act which authorized states to enact laws requiring adherence to manufacturers' list prices. The Harris bill would make adherence mandatory on a nation-wide basis.

Recession is revealing some of the weak points in unemployment insurance and Social Security. Congressional committees are working on additional safeguards.

Evidence of public approval of the recommendations of the Senate's Surface Transportation Committee is so impressive that legislative prospects for some of the suggestions have improved.

More money than in any previous year will go into aviation during the fiscal year beginning July 1. This is in preparation for the introduction of jet plane service by the scheduled airlines.

Paul Wooton



Melvin C. Holm, Vice President and Treasurer, Carrier Corporation

"Moore forms helped us cut inventory 18%"

CONTROL KEEPS CARRIER READY FOR ITS CHANGING MARKET

A new system helps Carrier Corporation meet the seasonal fluctuations of its market. A series of automated procedures speeds the tabulation of facts — for forecasts, for scheduling production of air conditioning units and — most important — for controlling components that are to be manufactured or purchased against a staggered schedule. A Parts Requirement Record is the key. It is a 4-part Moore Speediflo continuous form — the company's control in print.

Among benefits, the system helps prevent overproduction. A rigid parts control cuts inventory and saves warehouse space. This has released capital for other uses and lowered the company's loan requirements. Not the least important, earlier shipments can be promised — and made.

Moore's Automated Data Processing (ADP) can solve problems for the small business, too. And it doesn't have to be costly. Whether you want an entire system automated or only a few procedures improved, the Moore man can help plan the control you need. He's listed in the telephone directory — call him or write the Moore office nearest you.

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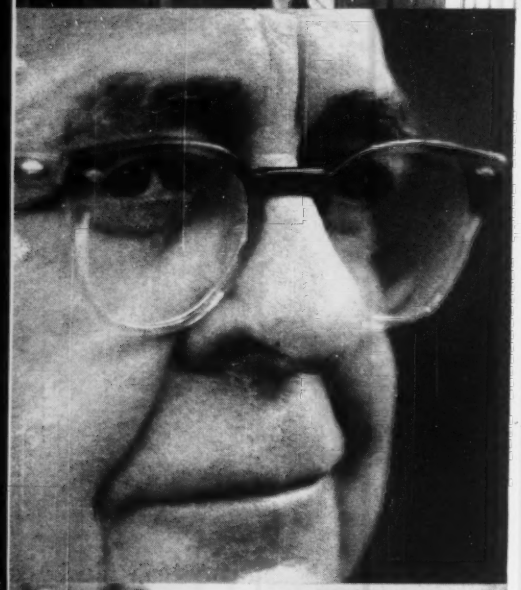

"T-1" Steel gave us a 3-year jump on our competition

says Mr. Ben F. Lease, President, Athey Products Corporation

Athey Products Corporation makes off-highway earthmoving equipment. A couple of years ago, they began investigating U. S. Steel's revolutionary new "T-1" Constructional Alloy Steel, which is nearly three times as strong as structural carbon steel.

The first Athey rear dump trailer made from USS "T-1" Constructional Alloy Steel hit the market. It weighed *8,000 pounds* less than previous units, and carried a thumping 7½ cubic yards more payload. The unit was immediately accepted by the trade.

Then Athey really went into high gear. They built a revolutionary new bottom dump trailer that didn't even have a supporting frame! The USS "T-1" Steel body was so strong that it supported itself, and it achieved absolutely the highest capacity-to-weight ratio ever obtained in units of its kind. Buyers jumped for the new trailer, and they have bought over a million dollars worth since it was introduced. Competitors are already designing with the new steel, but Athey knows that the change can't be made overnight, so they enjoy a healthy lead.

If you'd like to clobber the competition with heavy-duty equipment made from this remarkable steel, write for our "T-1" book. Address United States Steel, Room 2801, 525 William Penn Place, Pittsburgh 30, Pa.

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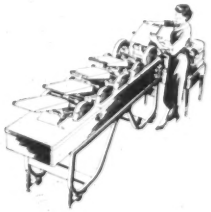
The "3300" (shown with Pitney-Bowes FH folder) combines with any PB folder, or can be used by itself as an inserter.

This new, low-cost Model 3300-FH brings to the smaller office the convenience and savings of machine folding and inserting . . . displaces costly and time-taking handwork, prevents disruption of work schedules, avoids overtime and the problem of finding temporary extra workers . . . permits wider use of the mails to promote your product or service—at lowest cost.

It folds—*and* inserts in envelopes—single enclosures such as letters, cards, leaflets, invoices, bulletins, etc. . . . at speeds up to 4,000 an hour, depending on the job. Multiple enclosures are easily handled with two or more runs through the machine.

Simple to set (without tools) and easy to operate, the 3300-FH can be used by anybody—even the boss! Handles a wide variety of paper items, including sheets stapled together. Faster, neater, more efficient and cheaper than hand folding and stuffing.

Even when used infrequently, this machine will show worthwhile savings in any office. Call the nearest Pitney-Bowes office for details. Or send coupon for free illustrated literature, and "case studies."



Model 3100, *with six optional stations, inserts up to six enclosures at speeds to 6,000 an hour. Offers optional hookup with a PB postage meter mailing machine.*

Advantages of the Model 3300-FH

- Only nationally sold and serviced *combined* folder and inserter on the market.
- The 3300, as an inserter by itself, is the lowest priced inserter available.
- Handles enclosure sizes (after folding) up to 8⅞ by 5½ inches.
- Automatic feed with continuous load, stops to prevent jamming or tearing.

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☐ *Model 3300* ☐ *Model 3100*

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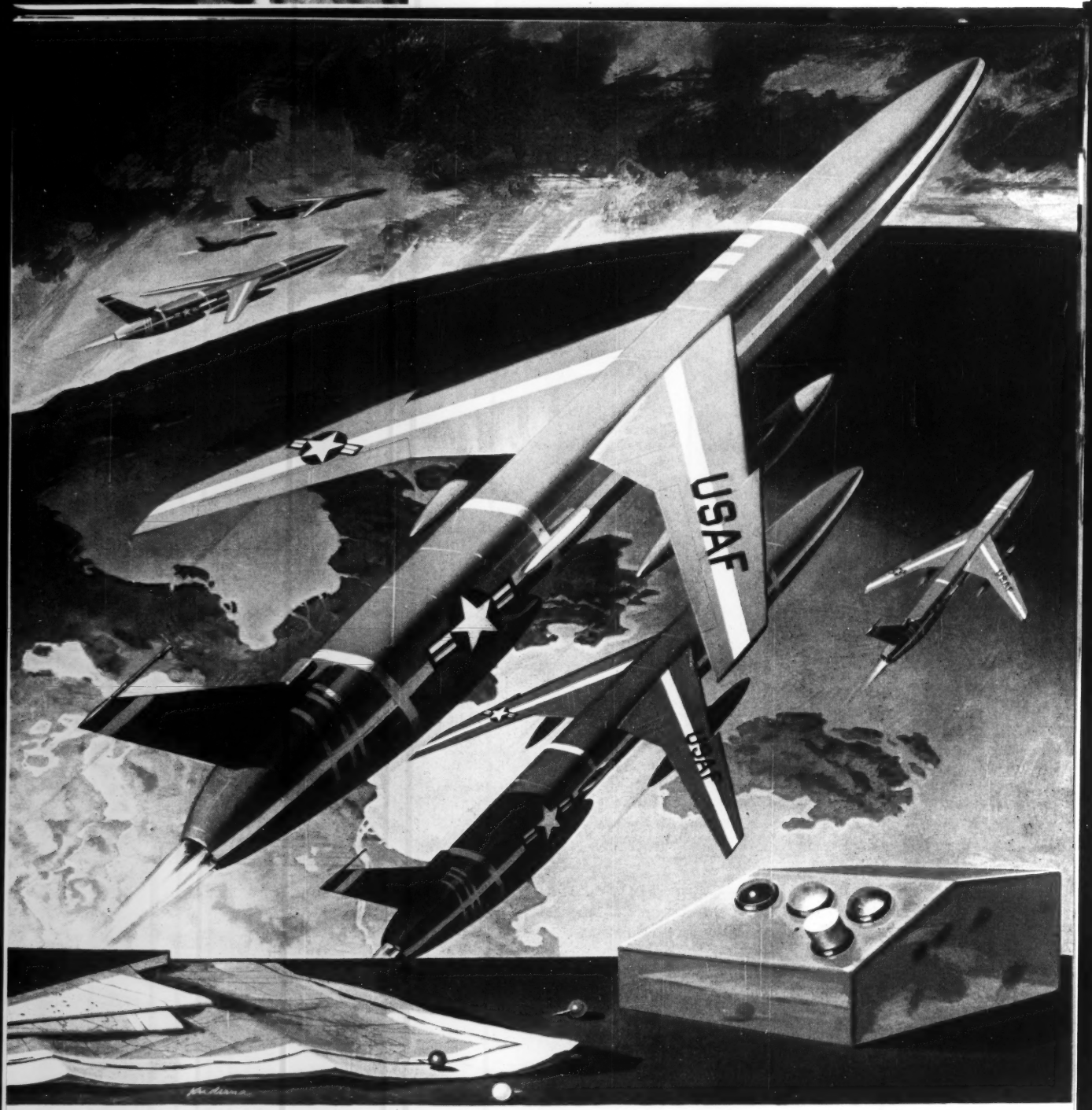

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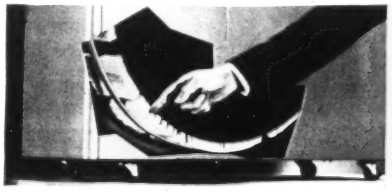
BEVERLY HILLS, CALIFORNIA, U. S. A.

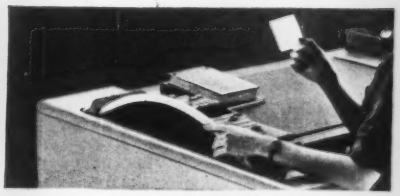
How to spot Johnson, Fred R. in 1½ seconds

NEW MOSLER REVO-FILE gives you personnel facts fast...obsoletes all other card files



No fall out! Exclusive patented Revo-File belt keeps cards perfectly in place, protects against wear. If you have 2,500 or more cards, Revo-File is for you.

No attachments! No hole punching! Cards not attached to drum. Just store your present cards into Revo-File.



No effort! Cards come to clerks with spin of drum. Revo-File available in manual and automatic electric models.

New Mosler Revo-File is the *unique* rotary active-card file. It's the *only* rotary-card file that: cuts reference time to 1½ seconds; contains 5 times as many cards as other systems hold in the same space; reduces all finding locations to just one; eliminates changeover costs. Now there's no more tugging, toting, flap-flipping or pulling...Revo-File is *modern*...clerks work while comfortably seated. And remember, one quick spin of the Revo-File drum gives you *the* card you want...in just 1½ seconds. For further information, send coupon today.

NEW **MOSLER** REVO-FILE

...the modern rotary card file...another fine product of The Mosler Safe Co., 320 Fifth Avenue, New York 1, N.Y.

REVO-FILE DIVISION • THE MOSLER SAFE CO.
Department DR-658, 320 Fifth Avenue, New York 1, N. Y.

Gentlemen: I have 2,500 or more cards and—

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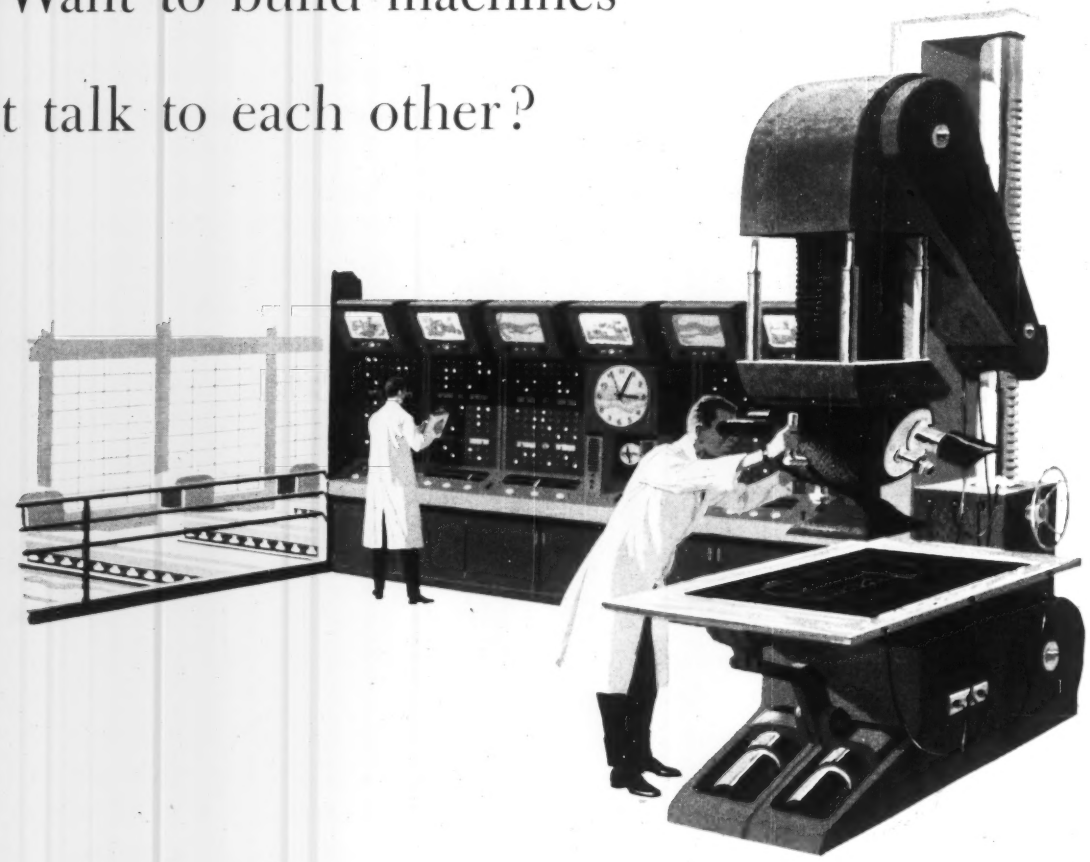
Want to build machines that talk to each other?



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Whoever decides to build such advanced equipment will need all the help he can get; and he can get a lot from Thompson Products—in research, engineering and actual production of component parts.

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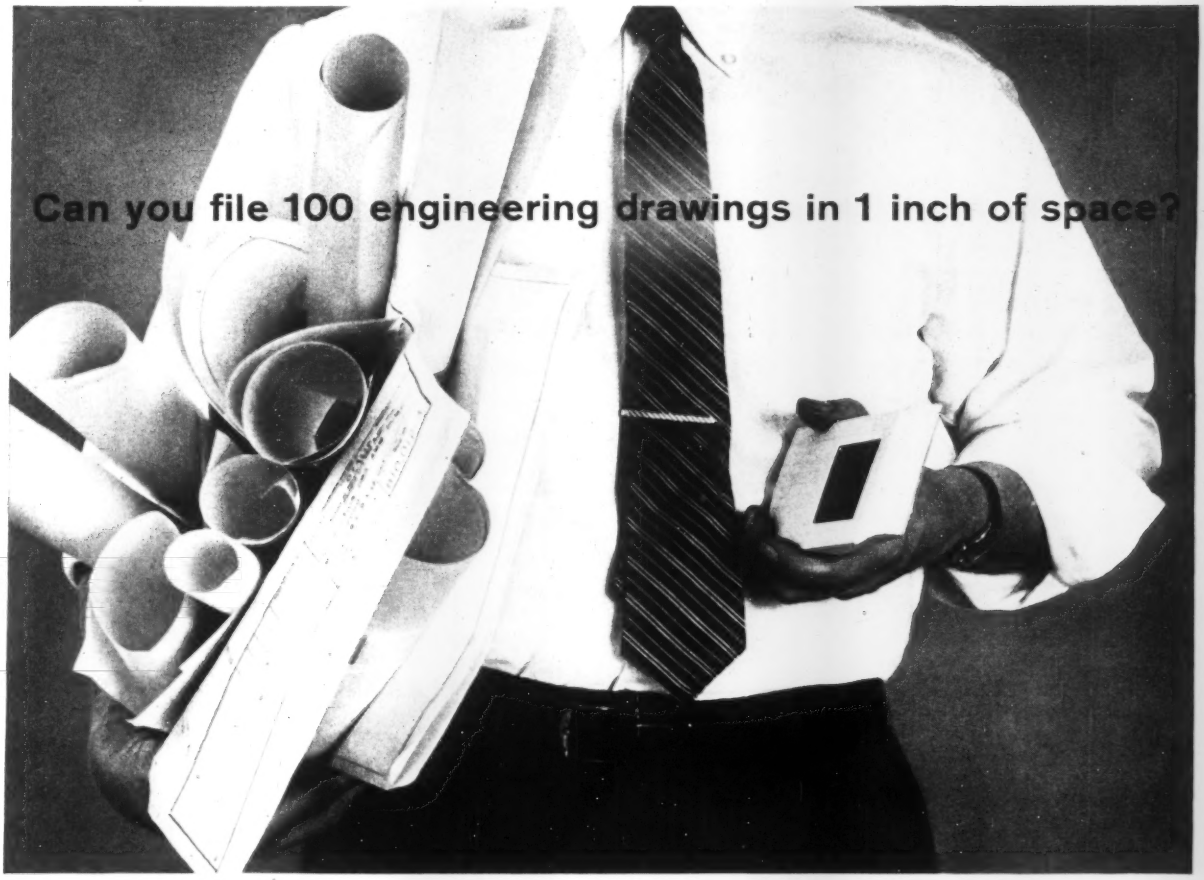

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Is the "Business Man's Government" Meeting the Test?

CARROLL KILPATRICK

Over the past few months, many business men have been eying Administration policies more critically than at any time since the 1953 inauguration. How well is Ike's middle-of-the-road philosophy standing up to the challenge of the recession?

FIVE AND A HALF YEARS after President Eisenhower's first inauguration, his Administration—originally heralded as a business man's government—is confronted with the momentous problem of how to save business and the country from the tragedy of a serious recession.

Counsels within the Administration have been divided on this crucial question. The Democrats have raised a hue and cry that the Administration is timid and indecisive. In the wake of the nation-wide chagrin over Russian successes in outer space, the Administration today is in its deepest trouble to date, with the President's popularity at its lowest ebb.

Unless its anti-recession program, put forward piecemeal, begins to have the desired effect promptly and clearly, the Administration and the things it stands for are in jeopardy. It is the realization of this fact on the eve of the midterm election that has frightened and dismayed the Republican professionals.

Some business men who were strong Administration supporters are now disillusioned—some because they think the President has embraced too many New Deal ideas, others because they believe politicians rather than business men have molded policy, and a few because they believe the Administration has held too long to orthodox economic concepts in fighting the recession. Still others have lost faith in the Administration's strength and capacity to steer an orderly course.

From the beginning, Vice President Richard M. Nixon and Secretary of Labor James P. Mitchell have advocated a more direct and activist approach to the problems of the recession. But the President, with some of his other advisers, has insisted that there is danger in moving too fast and too far, particularly when the downturn itself is accentuated by rising prices.

Few of the President's advisers clearly foresaw the approaching recession, and few—Mitchell may be a notable exception—expected the recession to reach its present depth. The President's Economic Report and Budget Message in January indicated concern but little alarm. Appeals for economy in domestic affairs, however, have since been repudiated.

An assessment of the business policies of the Eisenhower Administration must begin with an understanding of the character and personality of the President. Dwight D. Eisenhower is essentially a unifier, a pacifier, a conciliator. He dislikes controversy and seeks support from diverse and contradictory elements in the population. On most issues, economic as well as political, he seeks middle ground.

One historian says that the President is not an earth shaker but an earth smoother. That has been his approach since the recession began—the approach of a man trying to inspire confidence by not moving too quickly or drastically. In his general attitude toward business policies, the President was determined from the beginning to move back to the center line but not to go beyond it—a position that has entirely pleased very few in business or labor who have special problems. But it is a position that has until now obviously satisfied the electorate.

Presidential influence

Whatever the President's critics may say, the evidence strongly suggests that the Eisenhower imprint has been firmly placed on the economic and business policies of his Administration, as well as on other policies, foreign and domestic.

In his first Administration, the President turned readily to business men for advice and counsel. He was eager to reduce the Federal bureaucracy, Federal spending, and the centralization of power in Washington. He wanted to return many functions assumed by the Federal Government in the years of depression and war to the states.

By 1956, however, there was a noticeable let-up in the emphasis on limitation of Governmental power. The President appeared to be relying less on essentially business-oriented advisers in the economic field. As the 1957 battle over the budget demonstrated, business was not completely happy with the Eisenhower fiscal policies. Some business leaders complained that the Administration acted only timidly in the interest of business. Some Administration supporters grumbled that as the philosophy of modern Republicanism developed, business was being sold out.

Democrats, on the other hand, have insisted from the beginning that the Eisenhower government is business-oriented or even business-dominated. Eisenhower Republicans reject the description as unfair and inaccurate. Obviously, whether or not you consider this a business man's government, depends upon your viewpoint. Former President Truman thinks it is. Administration leaders say it is not.

The man for the job

The truth may lie somewhere between. As Gabriel Hauge, special assistant to the President for economic affairs, has said, the issues facing the United States today do not require a hard choice between "free-wheeling individualism and a thorough-going state absorption of all economic decision making. The real issues today turn on questions of more or less Government intervention." The President's associates say he is ideally suited to an environment where the questions are of the "more or less" variety.

When he was first inaugurated in 1953, President Eisenhower had three undoubted mandates from the American people: to fight for peace, to work for a prosperous America, and to restore honesty and integrity to government. Because Democrats had for years charged that the Republican party was

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The Business Viewpoint

To date, the six business men shown below (with main business connections when appointed) have probably most influenced the Administration. Key Treasury and Defense posts have been continuously held by men with big business backgrounds. Summerfield and Weeks are only business men remaining from Ike's first Cabinet.

THE OLD . . . .

GEORGE M. HUMPHREY
M. A. Hanna Company

CHARLES E. WILSON
General Motors Corp.

THE NEW . . . .

ROBERT BERNERD ANDERSON
Associated Refineries, Inc.

NEIL H. McELROY
Procter & Gamble Company

THE VETERANS

ARTHUR M. SUMMERFIELD
Summerfield Chevrolet Company

SINCLAIR WEEKS
Reed & Barton Corp.

When a Company Goes Public

HAROLD M. ALTSHUL, *President, Ketchum & Co., Inc.*

How does the privately owned company whose success spurs it to further expansion face the crucial question, "Should we go public?" There's often an impressive payoff in public ownership—but it's vital to look before you leap.

ONE IMPORTANT by-product of our economy's dynamic growth in the past ten years has been the spread of equity financing. In 1957, the total number of new issues showed a dramatic increase of 25 per cent over 1948. There is nothing accidental about the growing appeal of public ownership, nor is it just a fad. Small companies as well as large are discovering that it often opens up opportunities that would otherwise be hopelessly out of reach. Public ownership can also solve personal problems for the owner of a business—problems of taxes, estate planning, even of the survival of the business itself.

Going public can provide a sound basis for future company growth. Successful public sale of stock can supply additional working capital to finance major expansion projects—capital in far greater amounts than the average privately owned business is able to raise.

New working capital obtained by equity financing can also solve thorny problems of debt retirement, thus avoiding annual service charges which drain off needed income. And when it comes to acquisitions and mergers, a company that can offer salable securities is in an incomparably better position than a privately owned concern. There are two reasons for this: first, the seller often prefers payment in marketable securities; second, the buyer can often make the acquisition without increasing the company's over-all indebtedness.

Owner advantages

Benefits to the original owner are another reason for the strong appeal of public ownership. Many privately held companies are so badly in need of funds that their survival may be endangered when the owner dies. Realizing this, some owners attempt to offset the effect of estate taxes by loading themselves down with an extremely heavy burden of life insurance at increasingly costly rates and diminishing returns. But since public ownership puts the owner's equity into marketable securities, estate tax demands can be met by selling stock, without danger to the business itself or to the owner's remaining equity. Furthermore, the market price of the stock helps to fix the value of the estate for tax purposes.

Because his equity is in the form of marketable securities, the business man can take advantage of capital gains tax rates if he decides to sell some of his stock. Where no ready market exists for a private company's stock, as is frequently the case, a severe tax penalty may result if he attempts to sell the stock to the company, directly or indirectly. When a company's stock is publicly traded, the owner-operator can readily broaden his personal portfolio by selling part of his original equity and diversifying his investment. Of course, if the company's stock increases in value, this automatically adds to the owner's net worth.

There are still other good reasons for going public. A publicly owned company stands a better chance of attracting top-caliber executives who are looking for challenging career opportunities. If an employee stock-purchase plan is introduced, employee

morale often benefits. This is less likely to be true in a privately held company, where the market value of the stock is uncertain and the company may find itself with dangerous "buy-back" commitments.

Also, public ownership adds to a company's prestige. A company whose stock is widely held is in the public eye. Its operations are known to be under the scrutiny of its stockholders and directors, and the marketability of its securities testifies to its soundness and stability. All this can and often does subtly influence the company's customers and suppliers as well as others with whom it deals.

Despite the advantages of public ownership, it is not a step to be taken hastily or lightly. Management should realize that it will probably have less freedom of action under public ownership, and an executive who is used to doing things his own way may not relish having to justify his decisions to a board of directors. Reporting regularly to stockholders may also be irksome to the man who has made it a policy to "tell nobody nothing." Going public costs money, too, and it is always possible that a flotation will fail. Not long ago a well-known and reasonably well-regarded company was forced to withdraw a million-dollar offering because there was insufficient demand for its stock. As a result, its stature and reputation in its industry suffered, and so did employee morale and management planning.

WHY KETCHUM & CO. WENT PUBLIC

In November 1957, Ketchum & Co., Inc., launched its first public sale of stock. With annual sales of about $33 million, Ketchum & Co. is one of the four largest drug wholesalers in the country. It is engaged entirely in distribution. But like production and marketing enterprises, it needed new working capital to expand. Today its stock is being traded over the counter.

In the past, the company had met its growth needs through private capital and debt financing. But sound capital structure requirements limit the use of these resources. When Ketchum & Co. decided to carry out a broad expansion program aimed at giving better service to its more than 3,000 customers (most of them independent retail pharmacists), equity financing seemed to be the way to go about it.

In addition, Ketchum & Co.'s ownership had for some time been seeking a way to increase the liquidity of its holdings in line with sound estate planning. When the company's expansion requirements dovetailed with the needs of the owner-management, "going public" turned out to be the answer.

Public financing prerequisites

Before Ketchum & Co. took the step to public ownership, top management plunged into a concentrated program of study and research. The primary object was to get a satisfactory answer to the question, "Can we successfully market our securities?" Management discovered that while it is difficult, if not impossible, to gage accurately how the financial community will react to a new issue, most experts agree that a securities offering can safely be made only under certain conditions. Here is a rundown of the three main ones:

1. The offering must be made for a legitimate reason, which is acceptable to the investing public.

Obviously, potential investors must have confidence that the additional working capital represented by their investment will contribute to the company's over-all growth or efficiency. Whenever possible, therefore, the offering should specify how the working capital will be used. Some of the popular uses of new capital from public sale of securities are: acquisitions to broaden a company's market base, new services or products to attract more customers, new capital equipment to cut costs.

For example, an electronics company that specializes in the manufacture of equipment for community television pick-up systems in "fringe" reception areas wished to expand by going into the operation end of the business. First, the company made a careful investigation of the market potential. Then, in its prospectus, it presented convincing figures to show the high rate of income produced by these systems. As an organization familiar with the technical aspects of community TV system operation and experienced in operating other systems in which it had a part interest, the company was able to attract capital. Specific details on where and when the company planned to develop and operate three new community TV systems were also given in the prospectus. Despite a relatively modest earnings picture, the company was successful in marketing a $3 million issue. And the owner of the company was able to ease his own estate-planning problem.

Certainly the needs of the original stockholders can be considered a legitimate reason for making a public offering. But that reason alone is not enough. A public offering is justified only when the needs of ownership coincide with those of the corporation, as they did in the case of the electronics company.

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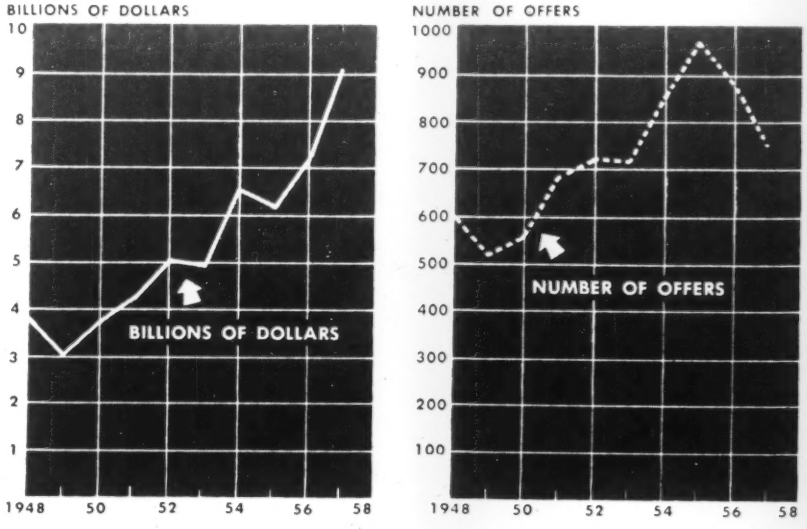
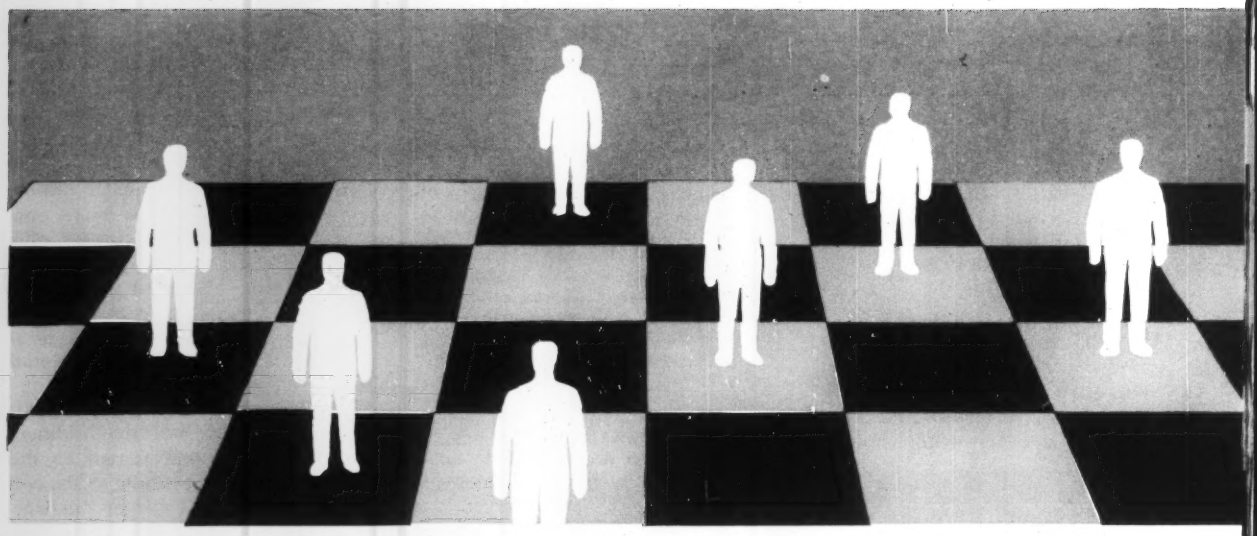
CHARTING THE COURSE OF PUBLIC FINANCING



Growth of total underwritten public financing graphically reflects the tremendous expansion in the U.S. economy over the past ten years. Despite a few backward slips, the trend has been upward, with new-issue dollar volume in 1957 almost three times 1948's.



How to Reorganize for Better Profits

LOUIS A. ALLEN

There are no shortcuts to successful reorganization, but the eventual dollars-and-cents return on a thorough, carefully planned job can be substantial. Here's a tested program, broken down into six basic steps.

UNTIL JUST A FEW months ago, when the recession began to make itself felt in industries across the country, vigorous, continuing growth was something a great many companies simply took for granted.

In the fertile economic climate of the postwar years, sales boomed, production requirements multiplied, and profits flourished as never before. Inevitably, the majority of companies found themselves grafting new functions on to the organization, and existing departments sprouted out in all directions with little direction or guidance.

Now, with the slackening in market demand, many of these companies are faced with the need to prune some of this exuberant organizational growth. Unfortunately, the pruning is often haphazardly done. One Pennsylvania company, for example, recently instituted a 15 per cent across-the-board slash in manpower. It was quickly apparent that the cut had dangerously weakened efficient departments operating with few surplus personnel and had whittled only a little fat from overstaffed or marginal departments.

And a small West Coast company transferred its sales training section from the marketing department to the already overburdened personnel department. The resultant saving of three salaries looked good the first quarter. But it looked less good when sales training in the field slowed noticeably. Now there is every indication that the deficiency will handicap the company for years. If the concern had examined all departments with care, it would have seen that a reorganization of the field sales force could have achieved more effective coverage, at less cost, by reducing the size of the sales territories and assigning them to fewer men, by territory as well as over-all.

Careful reorganization can often eliminate sizable chunks of expense by regrouping activities. In many cases, complete units and sections can be consolidated without disturbing the nucleus of highly skilled talent at higher levels.

For example, when Sylvania Electric Products, Inc., analyzed the organization of a plant of 500 employees, it found 100 persons assigned to maintenance. Further investigation revealed that the maintenance department was actually functioning as a plant engineering and construction department. At one time, maintenance had taken on the job of renovating and installing production equipment in some areas previously used for storage. After giving the equipment a trial run, maintenance was to turn the new facility over to the production department. But as so often happens in such cases, maintenance continued to operate several processes

that required considerable mechanical skill.

When a staff expert took a look at this set-up, the new activities were promptly transferred to production. At the same time, the maintenance department was reorganized and expanded into a plant engineering department in line with the work it was actually doing.

Many organizational set-ups support a number of positions for which there is no real need. "Assistants" and "assistants to" often fall into this classification, as do "coordinators" of all descriptions. Committees are often manpower wasters and time consumers. Their number and the frequency of meetings can usually be reduced to advantage.

But even though cost cutting can be an important by-product, reorganization should not be undertaken only to cut costs. The first consideration should always be to streamline and strengthen the company for long-term operating effectiveness and profitability.

The positive advantages of organization change can be many, for both the company and its personnel. In fact, even when extensive changes turn out to be unnecessary, just the process of preparing to reorganize can clarify the duties and responsibilities of managers and supervisors. Overlap, duplication, and waste effort can be spotted and eliminated. Most businesses have grown piecemeal, adding a job here and a function there, without an over-all pattern. A reorganization program can provide a basis for sound and consistent personnel selection, training, and compensation.

If your company is considering organizational changes, whether general or only for individual departments, here is a rundown of the six important steps to a successful and painless reorganization.

Develop objectives

The purpose of a company's organization is, in effect, to enable the company to reach its goals and carry out its programs within the limits set by policies and budgets. As Dr. Paul Holden, professor of management at Stanford University points out, when a company is contemplating organization changes, it should first analyze its objectives and operating programs.

Many companies that have reorganized have learned—*afterward and too late*—that the changes should have been based on a study of the business as a whole and that simply rearranging the rectangles on an organization chart is not enough.

For example, several years ago, Lukens Steel Company identified a number of weaknesses in its marketing and manufacturing operations. Rather than plunge into immediate reorganization, the company made a careful study of its objectives and over-all programs. It found that its sales tended to fluctuate with the variations in the capital goods market, and that its geographic location, lack of integration, and insufficient diversification of product line were competitive disadvantages.

Following through on these findings, President Charles L. Huston, Jr. set a long-term objective of increased marketing effort in those segments of the capital goods industry that could utilize the company's products on a more stable basis and offer the greatest growth potential on a continuing basis. A second, closely related objective was improvement in product mix by increased concentration on products that Lukens could produce with the maximum return on invested capital and for market areas that the company could serve best.

Lukens accomplished these objectives by strengthening the organization and improving the techniques of the commercial research, technical service, and marketing service departments. The company's sharp improvement in sales, profits, and market position attests to the success of the plans.

Survey the organization

In a careful and detailed inventory of the strengths and weaknesses of the existing organization, you should

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How to tell when you're in trouble

Check these common symptoms to see whether your company is in organizational difficulties and whether reorganization is in order. If your answer to more than three questions is "yes," better take a second look at your organization.

1. When management jobs are vacated, do you spend much time and money finding replacements with unusual combinations of experience or abilities?

2. Does your company consistently fail to take a leading position in introduction of new products?

3. Do you spend more than two hours weekly in committee meetings?

4. Does more than one-half of 1 per cent of your total company salary expense go to "assistants to," or "coordinators"?

5. Does the president of your company approve increases for salaries above $5,600 annually?

6. Are there more than seven levels between first-line operating supervision and the president?

7. Do more than eight executives report directly to the president?

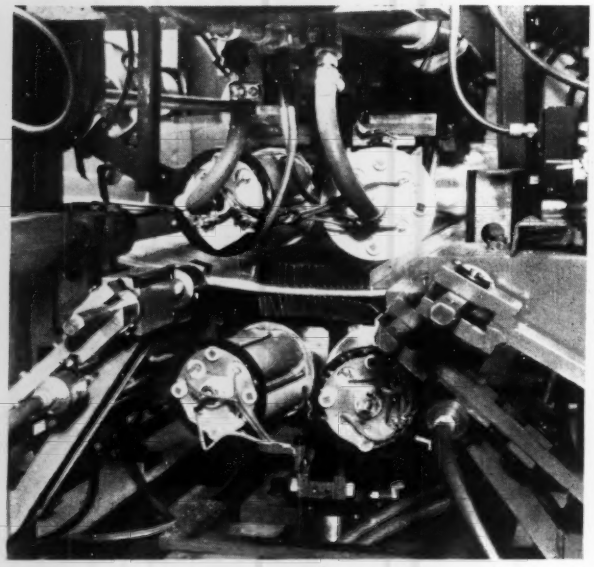
8. If your company is more than 25 years old and has over $50 million annual sales, have you rejected the idea that reorganization may be in order?

9. If your company has over $250 million in annual sales volume and sells at least three different product lines through three different distribution channels, have you failed to take at least the first step in divisionalization and decentralization?

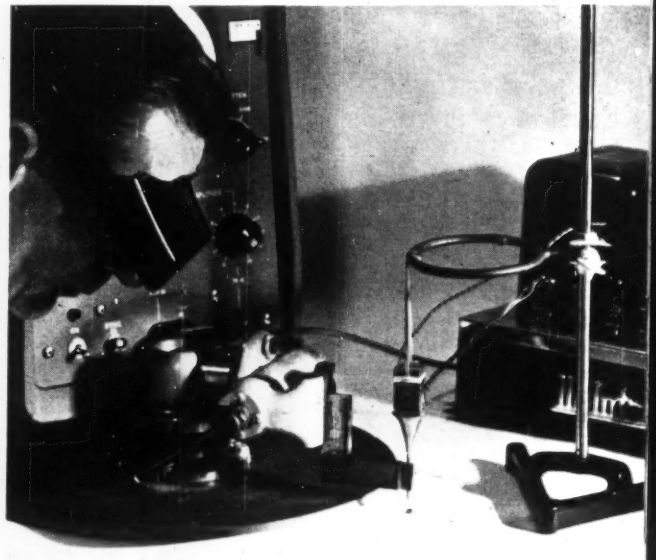
10. If your sales volume is under $5 million yearly, your activities are concentrated geographically, you sell one product in one primary market, and the business is still run by its founder, have you undertaken a program of divisionalization and decentralization?

11. Have you made more than one unsuccessful attempt to diversify?

12. If you have more than 100 salesmen operating in more than three states, do your field salesmen still report directly to the head office?



WELDING: *The four round objects are the backs of the ultrasonic transducers on an automatic Gulton welder that turns out big sections of a heat exchanger made of hard-to-weld aluminum.*



DRILLING: *This home-made apparatus drills 5/1000-inch holes in harder-than-steel ferrites at Lockheed Missiles, Sunnyvale, Calif. The holes can be seen only through magnifying glasses.*

Industrial Ultrasonics Comes of Age

MELVIN MANDELL, *Industrial Editor*

Keeping abreast of the latest developments in ultrasonics could give you an edge on competition. "Silent sound" is paying off now in many specialized jobs—and wider use, along with new technical progress, promises to bring costs down.

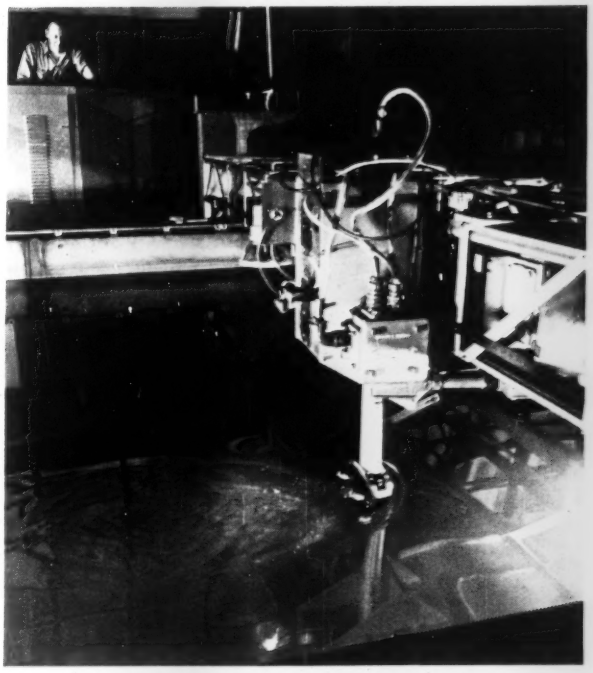
IT'S A LONG HAUL from a laboratory experiment to a proved, easily operated industrial tool, as any experienced production man can testify. After the first technological stirrings in ultrasonics, it took more than a decade to find out which of the laboratory demonstrations would evolve into practical industrial applications. But now some ultrasonic devices have become so useful that many manufacturers can't conceive of doing business without them.

In the course of the past five years, the development of simple, mechanical generators of ultrasonic energy has added a new dimension to the field, and the medical profession's interest in ultrasonics has continued to grow. Nonmanufacturing applications have a special significance for industry, because the same components are used in industrial and nonindustrial equipment. If mass production of ultrasonic gear, with such benefits as a drop in cost, is to be achieved, these nonindustrial applications will have to carry most of the burden.

Setting aside the many frankly promotional and hastily demonstrated claims, here is a rundown on the status of ultrasonics in industry today:

- Cleaning is the simplest and most common application. Dozens of companies make small cleaners suitable for trinket-size objects which are dipped in the ultrasonic bath by hand. But big industry is more interested in conveyerized, production-line cleaners. Ultrasonic cleaning equipment is also being used to accelerate plating and pickling, improve quenching and annealing of metals, de-gas fluids, and deburr. But ultrasonics will never replace ordinary cleaning machines for most factory—or kitchen—jobs.
- Testing is also well established. Many ultrasonic fault locaters and thickness gages have been built right into automatic production lines. They are also used in maintenance.
- Ultrasonic soldering, brazing, and welding are advancing slowly. Even though they eliminate the need for corrosive fluxes, $1,000 ultrasonic soldering irons still have to compete with $20 conventional soldering irons. A few ultrasonic welders are used in special situations.
- Chemical processing with ultrasound waves is advancing unevenly. More than 150 resonating blade emulsifiers, about three turbine homogenizers, and a few compressed-air whistles are in use. Electronically powered ultrasonic devices are not so popular for

CLEANING: *Ultrasonic cleaners are now built right into big conveyer systems like this Detrex degreaser at Whirlpool Corp., Evansville, Ind. Ultrasound does the final, "precision" cleaning.*



INSPECTION: *Like a reverse periscope, transducer mounted at the submerged end of this traverser scans parts for flaws. The Electrocircuits fault-locater is at Kaiser Aluminum, Oakland, Calif.*

processing because of the expense of generating high power this way.

- Only a few hundred ultrasonic drills are used in industry, although 2,000 dentists use them. The ultrasonic drill is a very special tool that will have limited uses for cutting small holes of uncommon shape in difficult materials such as ceramics, glass, and ferrites.
- Use of ultrasonics to precipitate smoke and fumes and to inhibit barnacle growth on ships is still a laboratory curiosity in the United States, although about 35 foreign ships are equipped with Marconi International's transducers to protect hulls.
- Ultrasonics may eventually be used in processing molten metals. But one researcher who checked the claim that ultrasonics inhibits undesirable crystal growth in solidifying ingots of hot metal found that plain old mechanical vibration at 60 cycles does a perfectly adequate job.

There is no universally applicable ultrasonic cleaner. Each situation calls for a specific combination of detergent, power, and operating frequency for optimum results. Also, the part must often be soaked in a particular solution before going into the ultrasonic bath.

Frequencies of ultrasonic cleaners range from just above the audible to a million cycles a second. In general, the lower the frequency, the more efficient the cleaning, but there are situations in which higher frequencies do a better job.

Ferrous parts coming out of an ultrasonic cleaner or degreaser are so

What Is Ultrasonics?

Ultrasonics is a subdivision of the whole field of mechanical vibration. It deals with vibrations in gases, liquids, or solids that are above the audible limit, approximately 15,000 cycles per second. Actually many of the effects produced by silent sound can be duplicated with audible sound, but nobody could take the racket for long. There is no upper frequency limit for ultrasound. Some testers operate at 100 million vibrations a second.

Ultrasound can be produced in at least five ways:

- The most common is by conversion of electrical vibrations into mechanical vibrations of the same frequency in large crystals called transducers.
- By magnetostriction or the change in dimension that takes place in certain materials (usually nickel) when subjected to a magnetic field.
- By motor generators. These are hard to make in small sizes.
- By big sirens or whistles.
- In the "hydrodynamic analog" to the vacuum-tube oscillator, a mechanical device (page 138).

When the transducers mounted on a tank of liquid are energized sufficiently, they cause the particles of liquid to tear apart in an effect known as "cavitation," which literally means the formation of cavities. Unseen violent "implosions" are created when these transient cavities collapse. The great force of these implosions accelerates cleaning, de-gassing, plating action, heat transfer, deburring, and the tinning phase of ultrasonic soldering. Cavitation also produces emulsification and promotes polymerization. It is invisible, but makes a faint hissing sound.

When the vibrating transducers are held against metals, they cause cold flowing, which is the basis for ultrasonic welding. If an abrasive slurry is introduced between the transducer and an object, the abrasive particles are driven against the workpiece with great force and wear it away. The bit never touches the material. Ultrasonic drilling and grinding are done in this way.

Ultrasonic instruments depend on low power and fine control. Ultrasonic test devices use resonance effects and echoes of moving pulses of ultrasound. The liquid-level sensor is also a pulse-type echo instrument. The ultrasonic flowmeter determines the velocity of liquid flow in a pipe by the minute changes produced in a beam of ultrasonic energy passing through the liquid between two transducers set a few feet apart on the pipe.

clean they start to rust quickly. Many plants that use ultrasonic cleaners immediately apply a final or temporary protective coating to the parts. Rust-inhibitor additives for the bath are now being developed.

The latest development in ultrasonic cleaning is the processing of huge subassemblies from disassembled jet engines. If the Air Force finds that a jet engine can be cleaned ultrasonically without completely disassembling the engine, then many industrial outfits will be encouraged to consider ultrasonic cleaning as a means of cutting down maintenance costs on big machines.

Although ultrasonic cleaning is usually thought of as the final step to cap off conventional methods, it may replace usual methods where radioactive materials are concerned or to avoid the use of some toxic conventional cleaning agent.

Small ultrasonic cleaners cost as little as a few hundred dollars, but few plants can use a cleaner with a one-pint tank for anything except maintenance. With their extensive plumbing or recirculation filters, the larger ultrasonic cleaners used in production run into thousands of dollars. If conveying equipment to dip the parts automatically into the tank is added, the total cost of the system can run into the tens of thousands. Manufacturers of large production-line cleaners are now often adding an ultrasonic final stage to their conventional gear.

Undercover methods

Although ultrasonics has been used for deburring, radiusing, and "microinch improving" of precision parts for at least the last five years, few are aware of it. The half-dozen or so small companies that specialize in ultrasonic deburring make their own equipment according to carefully guarded designs. Some manufacturers of other ultrasonic equipment think that an abrasive slurry in a very high-powered ultrasonic cleaning tank does the deburring. Others suggest a powerful etching acid in an ultrasonic tank.

In reply, W.W. Wallace, vice president of Ultrasonic Deburring Co., Inc., of New Hyde Park, N.Y., says that his company's ultrasonic tanks are used only for cleaning and that his outfit builds its own ultrasonic deburring machines of secret design.

Ultrasonic deburring is not competitive with standard methods, such as the Wheelabrator, says Wallace, but only with expensive handwork. So far only makers of guidance equipment and delicate instruments are buying this service, but it is saving many of them spectacular sums.

Works like sonar

Ultrasonic instruments are completely different from ultrasonic cleaners and similar equipment. Most ultrasonic testers and thickness gages are closely related to depth- and fish-finders and sonar.

When the pulse strikes a fault or void, or the other side of a foil whose thickness is being gaged, it bounces back and is picked up by a transducer—usually the one that generated it. Since the speed at which sound travels through any given material is known, the location of a fault, or the thickness of a coating, can be determined. Another type of ultrasonic tester uses resonance to measure thickness.

Ultrasonic instruments are now well established in industry. Rapid, accurate, nondestructive tests eliminate pieces with hidden flaws before valuable assembly time is wasted on them. Ultrasonic testers are also widely used for maintenance in plants and power houses and on the railroads (see photo on page 140).

Automatic attachments that will interpret a test reading and act on it without human intervention are in the offing. The Air Force is sponsoring development along these lines.

Various ultrasonic testing devices and methods that are now in the laboratory stage should reach the plant in the next few years. For example, ultrasonic tests to determine hydrogen embrittlement, internal oxidation, nuclear-radiation damage, and plastic deformation, are all under study.

Another ultrasonic instrument, the flowmeter, has the great advantage of being able to do its job without obstructing the flow in a pipe.

Great expectations

Ultrasonics offers many wonderful processing possibilities—especially in converting from batch to continuous operations—but only a few have been proved. So far most use the new, simpler mechanical generators of ultrasound, which are largely of European origin. (The great vitality of ultrasonic technology overseas should continue to aid its growth here. Active ultrasonic labs exist in Hungary and Poland, but little is known of undoubted Russian progress.)

The first of these mechanical ultrasonic processing devices to be marketed is a resonating-blade emulsifier made by Sonic Engineering Corp., Stamford, Conn. Actually only a liquid whistle (see photo at left), this machine was first developed in England about six years ago. Over 1,000 are now in use there. Introduced here in 1957, the emulsifier, which also demulsifies, is now used in chemical, pharmaceutical, cosmetic, petrochemical, and food-processing plants.

The resonating-blade emulsifier may get some competition from an ultrasonic device called the Jet Mogenizer. The stream of liquid to be processed is run through a rotating chopper rather than over a resonating blade as in the whistle. This homogenizer was developed in Spain by a German refugee, and is made here by Buschman Products Company, New York.

Both these devices are pump-driven and can process liquids at the rate of hundreds of gallons an hour. Although in their present encased form neither piece of equipment could be used to generate ultrasound for a

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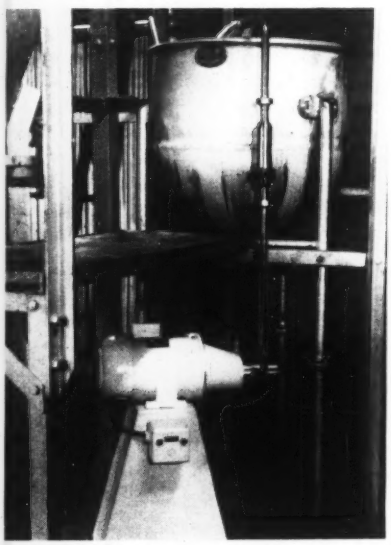


MECHANICAL GENERATORS: *Efficient, economical production of ultrasonic energy is offered by various mechanical devices such as the compressed-air whistle, the turbine homogenizer, and the resonating-blade emulsifier (shown here). Liquids pumped through the nozzle of the emulsifier strike the blade which then resonates at about 22,000 cps, causing cavitation in the stream.*

Building Profits on Outside Inventions

GEORGE S. HASTINGS
Vice President, American Machine & Foundry Company

Many companies reject unsolicited inventions as fast as they come in—with one stroke cutting down both the danger of lawsuits and the chances of profitable new products. Here's how one company succeeds, at minimum risk, in tapping outside sources of new ideas.

WHEN LAYOFFS hit the headlines, even the people who have money to spend—consumers and industrial buyers alike—begin to buy more cautiously. But they can always be tempted by a new and useful product. In fact, the right new product can create a market where none existed before.

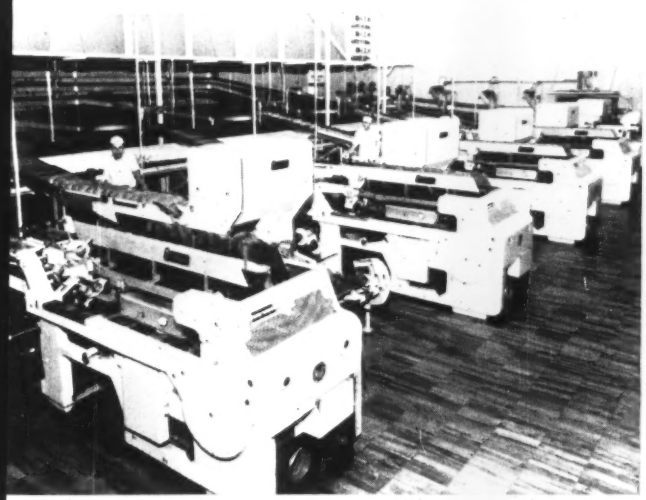
Practically all companies are aware of this, of course—hence the trend to larger and more elaborate research departments. But even the biggest laboratories staffed by the best-trained scientists have no monopoly on ideas, and it is quite possible for them to miss some pretty obvious and valuable ones. By law of averages alone, the thousands of individual inventors at work in attics and garages are likely to come up with some good ideas that have escaped the company experts. In fact, individual inventors obtain some 40 per cent of patents issued.

But the individual inventor, in most cases, knocks at industry's door in vain. It is general policy in perhaps the majority of companies to return inventors' letters unread, or at least unread by anyone who is able to evaluate the worth of their ideas.

This policy is based on two premises. First, many companies believe that good ideas among unsolicited contributions are so few that they are not worth the trouble of winnowing them out. Second, there is always the risk of a subsequent law suit. Suggestions that come in the mail often duplicate ideas the company is already working on, but it's hard to convince the outside inventor of this. Later, when the company incorporates the invention in a new or improved product, the inventor often expects to be paid and will go to law about it if he isn't. And even if his idea has never been patented, he may collect. What is known as "confidential disclosure" creates a contractual relationship and may entitle him to compensation later.

Both objections have some validity, but it is questionable whether such rigidity is sound from an over-all profit point of view. American Machine & Foundry, which has for twenty years or more been receptive to ideas from the outside—and even puts its own engineers to work on their development—now derives some $30 million in sales and rental income from products first suggested by noncompany inventors. And it has developed a plan that provides reasonable protection from suits.

It is true that we get our share of perpetual motion machines, and that only one among perhaps 250 to



AUTOMATIC BREAD WRAPPER: *Bakeries all over the country are equipped with these high-speed machines. Invented by Harry Y. Armstrong, a designer of candy-wrapping machines, AMF acquired the basic unit in 1924. Today, improved models are sold.*

AUTOMATIC LEVELER: *As plates and bowls on the counter above are added or removed, a Lowerator dispenser automatically keeps the stacks at the same convenient height. AMF acquired the device from its inventors, William J. Gibbs, and Ernest F. Smith.*

500 ideas is usable. But the wheat among the chaff has been worth it.

Take, for example, our Pinspotter —the device that automatically sets up bowling pins. The inventor, who got the idea while he was bowling in an alley with too few pinboys, developed the machine that was the basis for the one later redesigned and perfected by our engineers. In 1957, some 12,000 of these machines were installed in bowling alleys all over the nation. At the year-end, the figure had passed 30,000. In the first part of 1958, the demand was higher than in the comparable period of 1957. Our researchers would probably never have thought of this one since our main products at the time the idea was first presented to us were tobacco and bakery machinery.

Another example is the "Lowerator," the dish and article dispenser, commonly used in cafeterias and industrial plants, that rises to bring up a new item when the top one is removed. A third is a pretzel-tying machine that bends pretzels into their characteristic shape—an operation formerly requiring human hands, and very skilled hands at that.

Outside inventors will even tackle problems that companies believe insoluble and come up with practical answers. In 1909, no responsible automobile man believed that a self-starter would ever be developed. But a young man by the name of Charles Kettering, who had been working on a battery-operated ignition system in a friend's barn, went to Henry M. Leland, president of Cadillac, with an idea for one. Leland was in a receptive state of mind because a friend had recently died from the after-effects of a broken jaw sustained when a hand-crank kicked back. And so the first practical self-starter was featured on the 1911 Cadillac.

But there is danger

Not all automobile company experiences with outside suggestions have been so happy, however. For example, there was the man who approached General Motors with a device for an automatic top for convertibles. He was asked to leave a copy of his patent application, and then was informed his idea was not feasible. Later GM put out cars with automatic tops embodying somewhat the same principle (a cushion closure operated by a fold-

continued on page 160

MARK OF QUALITY: *Slip-stitched neckties tie better. Now the stitching is easily accomplished with AMF's tie-stitching machine, acquired from tie manufacturer Max Newman.*

FROM IDEA TO COMMERCIAL REALITY

Here's a rough picture of what it costs, in time and money, to bring a typical new product at AMF from the gleam-in-the-inventor's-eye stage to actual commercial production. The figures and times given are for a pioneer-type machine of medium complication, to be manufactured in lots of 50 and sold for $10,000 each. (The total market is assumed to be 2000 machines.)

Cost	% of total	Phase of development	Time required	Cumulative % of total time
$10,000	2	Conception and disclosure, study of manufacturing cost, patent situation and market, engineering studies and models	4 months	7.3
100,000	20	Jury rig testing of critical components, building and shop-testing pilot machine, making drawings as necessary	15 months	34.6
20,000	4	Field testing of pilot machine, incorporating field test changes	6 months	45.5
10,000	2	Detailed review of cost, price, market, and patent situation	6 months	56.4
35,000	7	Drawings of production machine		
75,000	15	Manufacture and field test of small lot of production machines (loss due to excess cost and changes)	12 months	78.2
40,000	8	Re-estimate of cost, price, engineering for cost reduction, bill of materials, revision of production drawings, drawings of tools		
150,000	30	Making of tools	4 months	85.5
35,000	7	Manufacture of first lot, correction of drawings, excess cost of manufacturing, installing and servicing	8 months	100.0
25,000	5	Initial advertising, demonstration, catalog and instruction books, service and installation		
$500,000			55 months	

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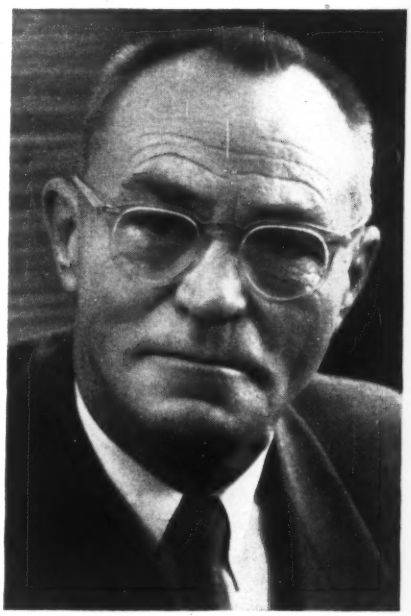

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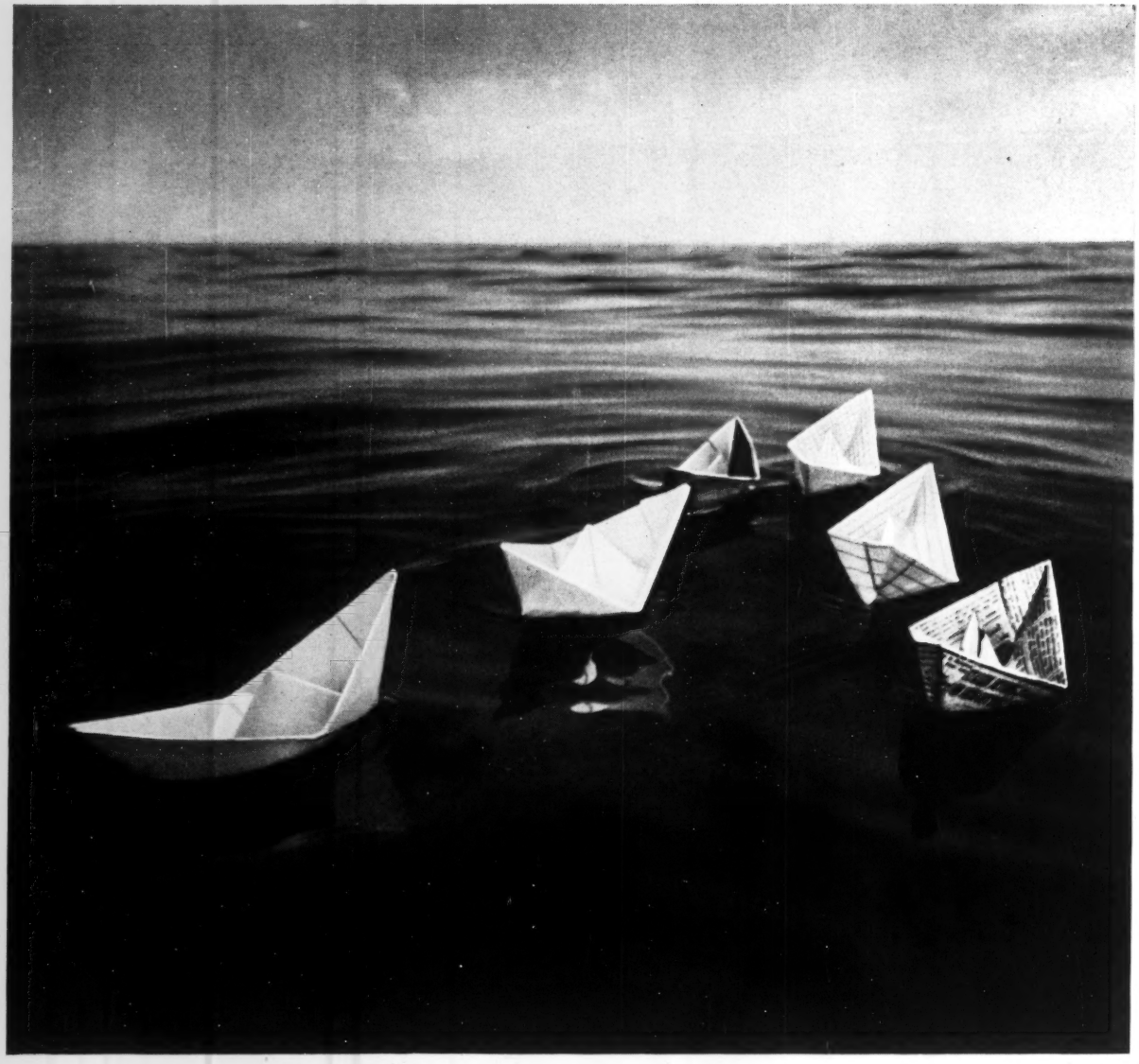

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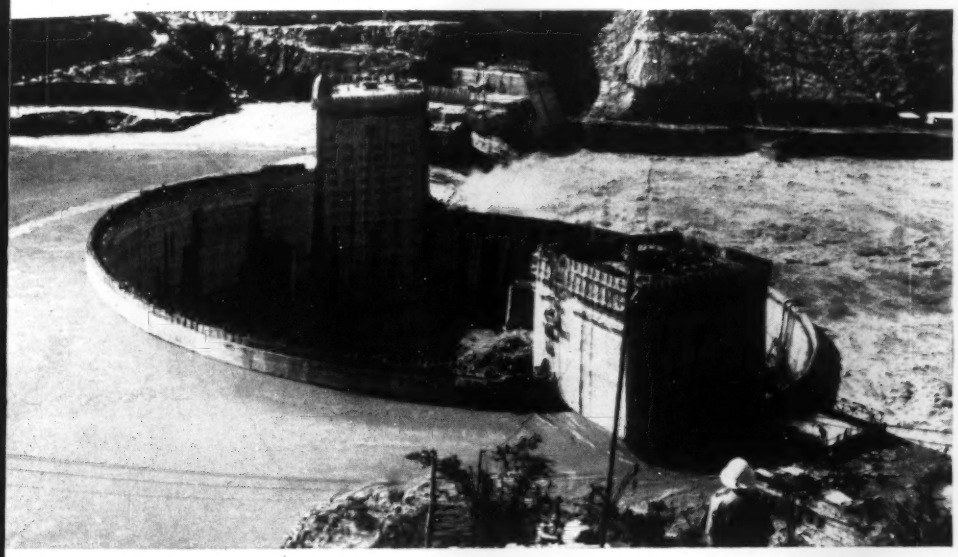


A DAM IN AFRICA: *The giant Kariba project will develop the power potential of the Zambezi River in the Federation of Rhodesia and Nyasaland, bringing power to the copper mines of Northern Rhodesia and other industrial users in Southern Rhodesia. Here, a cofferdam is shown shielding construction of the midstream section of the permanent dam across the Kabriba Gorge. The project is being built with aid from the World Bank.*

Financing Your Overseas Business

ALEXANDER O. STANLEY

Financing business activities overseas is a ticklish and complicated job. Here are some guideposts to help you through the maze of foreign capital and credit problems.

FINDING THE MONEY to finance your overseas activities may sometimes be a lot tougher than finding markets for your products. It's not that you can't borrow the money, get the guarantees, or discount your bills of exchange. This can be done some of the time on some of your commitments in some of the markets. But unhappily no uniform pattern exists for all overseas markets. When it comes to availability of capital funds or credit accommodations, it's feast or famine, market by market, and there are no constants. But when an economic coldfront develops, capital and credit run for cover. Intermittent political pressures, from within and without, also add to U.S. management's uneasiness about subscribing to long-range plans in overseas markets.

But the billions of dollars in annual revenues from exports year after year ($19.5 billion in 1957) and the billions of dollars in investments abroad ($3 billion net in 1957) are proof that, until now, management has resolved some of the tough equations of credit and capital shortages, trade imbalances, dollar exchange and import controls, investment laws, and lately common market mergers into positive formulas for action.

Even though the first statistical soundings for 1958 show a drop in our international trade, the stake is too big, competition too keen, and the repercussions likely to be too drastic for U.S. management to allow its strong position in the marketplaces of the world to go by default. Of course, current tinkering with international trade legislation, both here and abroad, is an imponderable. But business has to go on even when legislative alterations are in progress.

The fundamental problems in international trade have their rough counterparts in domestic operations. But in financing, some unusual techniques

have to be grasped if management is to operate effectively in markets as they exist in 1958.

A wide assortment of public and private channels of credit and capital are available to any company today. The trick is to develop the right combination of financing facilities to meet the needs of the individual market. The method of operation must also be considered, for comparatively short-term credit financing is needed for direct exports and long-term capital formations for branch installations or licensing agreements. Since both public and private agencies are in the business of underwriting credit and capital requirements, an analysis of the how, when, and where of their basic procedures is desirable for effective utilization.

The public facilities

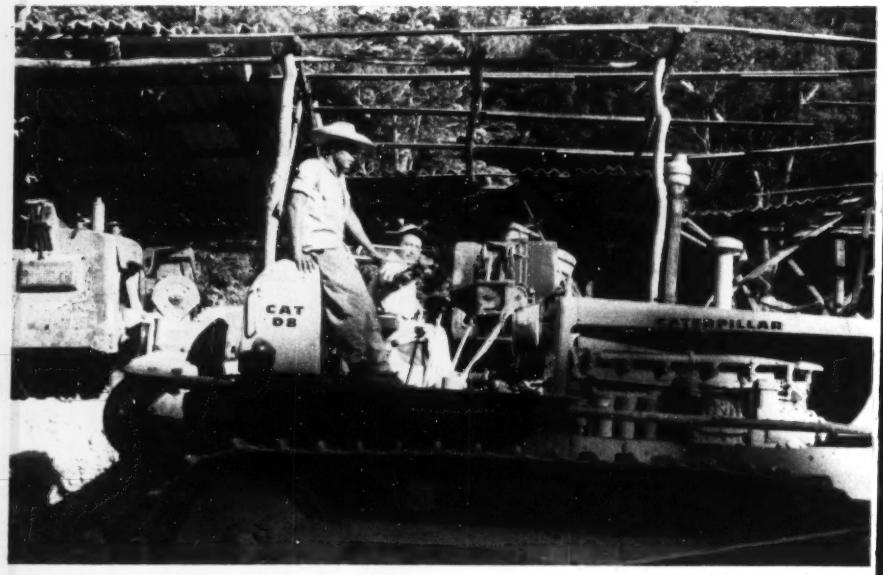
The Export-Import Bank of Washington, presently capitalized at $1 billion (but operating with a total lending authority of $5 billion), opened its doors for business in 1934. Now it has become the prime U.S. Government agency for underwriting international trade and investments. Its operations extend to every key market of the world. It lends, guarantees, or underwrites U.S. exports or investments to an extent and in a variety that many do not realize. For example, over 25 years it has authorized about $9 billion in loans (actually disbursed $5.9 billion) to more than 70 countries, involving thousands of U.S. products for hundreds of overseas projects, ranging from aircraft and aviation facilities in Ethiopia and machines for a mayonnaise plant in the Philippines to fire-fighting equipment for Peru. In its daily operation it:

- Lends money to foreign governments and to private foreign companies for purchase of U.S. equipment and supplies under the 1950 Defense Production Act.
- Guarantees loans made by U.S. commercial banks to foreign governments against default.
- Reimburses U.S. commercial banks on specific dates or upon demand for loans made to foreign governments on private entities.
- Guarantees reimbursement on letters of credit issued by U.S. commercial banks to foreign companies.
- Issues credit insurance policies on commodity shipments to foreign countries.
- Finances exports of U.S. companies under credit agreements to specific foreign firms or governments for specific products, equipment, or supplies. Such exporters' credit accounted for only 7 per cent of the dollar volume in eighteen months through December 31, 1957 (total loan volume $1.47 billion). But numerically these outweighed (207 to 270 units) all other kinds of credit in the same period. The standard pattern of this commercial paper discount or guarantee is on a without-recourse basis up to 60 per cent of invoice value after at least 20 per cent of the bill has been paid to the exporter by delivery time. It will be seen from this that the net risk to the exporter is only 20 per cent of the commitment.
- Acts as agent in loan operations of the International Cooperation Administration and other U.S. Government agencies. Currently it administers some $2.2 billion of foreign loans initiated by that group.
- Provides overseas investment guarantees to U.S. firms against political, but not business, risks, as agent for the ICA. Specifically, guarantees for *new investments* in friendly foreign countries against the following risks are available: inconvertibility of foreign currency receipts into dollars, loss through expropriation or confiscation, and loss from damage to physical assets caused by war. The minimum period of guarantee is three years for loans and five years for equity investments. The maximum period is twenty years.
- Coordinates its lending activities with other U.S. Government agencies, as well as with the World Bank and the International Finance Corp.
- Makes foreign currency loans in a growing list of countries (now thirteen) that have bought U.S. surplus agricultural commodities. If the full amount of the commodities made available under the sales agreements announced up to March 25, 1958, are actually purchased, the Eximbank can receive for lending the following currencies (in millions):

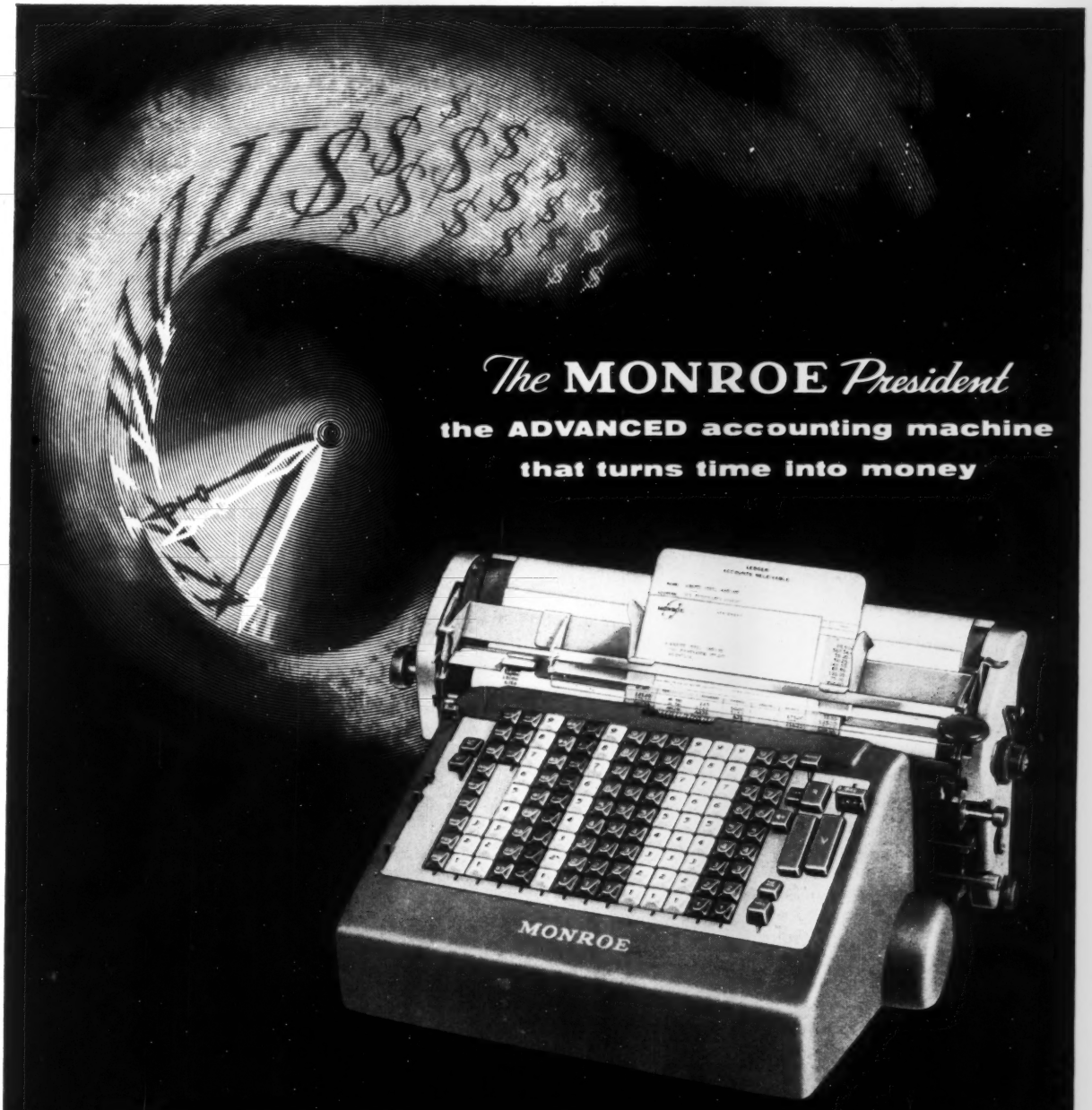
	Amount	Approximate dollar equivalent
Mexican pesos	88.7	7.1
Israeli pounds	15.7	8.7
Italian lire	8,906.3	6.2
Pakistani rupees	77.0	16.4
French francs	2,688.0	6.4
Greek drachmas	87.3	2.9
Turkish lire	25-30	7.0
Korean hwan	1,000.0	2.0
Finmarks	736.0	2.3
Colombian pesos	—	2.2

The Eximbank is authorized to lend to private business up to 25 per cent of the foreign currency proceeds realized from the sale of agricultural commodities under sales agreements negotiated after enactment date (March 13, 1957). Bills are now in the legislative hopper to extend this Act through June 30, 1959.

The Development Loan Fund of Washington, an offshoot of the Mutual Security Act of 1957, is a smaller edition of the Eximbank, with an initial capital of $300 million (present ceiling $625 million), operating on a some-



ROADS IN GUATEMALA: *The World Bank protects its loans for highway programs by emphasizing the need for proper maintenance. One of eight similar shops in Guatemala, this one at Escuintla is completely stocked for highway construction as well as maintenance.*



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Even if you paid hundreds of dollars more, you couldn't buy an accounting machine more automatic, easier to operate than the advanced Monroe President. Beside the large initial savings, you also enjoy continuous savings through fast, efficient bookkeeping. And you can switch from payroll to receivables to payables with a simple flick of a knob. The Man from Monroe in your area is an accounting methods expert. Seek his advice. Ask him to make a free analysis of your present accounting practices. For big business accounting at a small business price . . .

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what more restricted basis. Its present purpose is to finance projects in underdeveloped countries only when financing is unavailable from other sources. Particularly favored will be activities that lay a base for or eventually make possible productive private investment. In every instance the determinant is the long-range economic development and growth of the country where the project is located.

The International Finance Corp. of Washington, established in July 1956, is an affiliate of the World Bank (International Bank for Reconstruction and Development). With an authorized capital of $100 million (currently subscribed: $93 million), 35 per cent underwritten by the United States and the balance by 53 other countries, the IFC stimulates the flow of private business and investment. Differing from other Government financing agencies in that it is an investing, not a lending, institution, it is essentially concerned with the business rather than the political aspects of investment situations. Within the framework of its nine-point program lie some interesting future possibilities for U.S. companies:

- *Location.* The enterprise must be located in a developing member country of IFC, including dependent territories. IFC does not invest in projects located in the highly industrialized areas of its member countries.
- *Type.* In its early years, IFC will normally invest in enterprises that are predominantly industrial—manufacturing, processing, mining.
- *Size of enterprise.* IFC will ordinarily not invest in an enterprise whose total assets, after financing, are much below $500,000.
- *Size of investment.* IFC's investment will not cover more than half the total cost of the enterprise. Its investments will generally range from about $100,000 to $2 million.
- *Form of investment.* Under its charter IFC is prohibited from investing in equity. Its investments take the form of loans carrying some interest and some right to participate in the growth of the enterprise.

IFC's participation in an enterprise's growth may take the following forms: a right to convert the loan or some part of it into share capital or an option to subscribe to share capital, which can only be exercised by purchasers of IFC's investment; a right to some additional income related to earnings; or both.

IFC has no fixed interest rate or investment pattern. Its approach to working out an investment in a particular project is flexible.

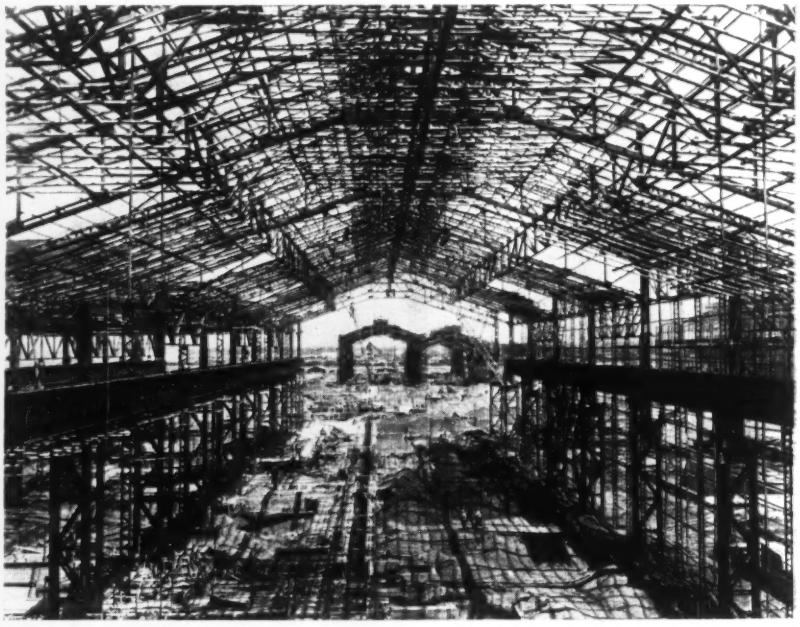
- *Security.* IFC considers earning power more important than a lien on assets and will not customarily take mortgages or other liens on assets. Its investment may be subordinated to other obligations if the terms given the IFC are satisfactory.
- *Currency.* All IFC's present capital of $93 million is paid in U.S. dollars. Generally, its investments are expressed in U.S. dollars. But it will invest, at least in part, in other currencies if stability of the currency and participation rights justify it.
- *Revolving portfolio.* IFC intends to sell its investments as soon as they prove sufficiently successful to attract private investors. It is giving the sponsors of its investments the right of first refusal to purchase IFC's interest in an enterprise.

Its first investment in collaboration with a U.S. company was recently concluded with Olin Mathieson Chemicals International and involved a $4.4 million total commitment ($1.2 million is IFC's share) in a newly built but not yet productive pulp and paper mill in Brazil. To date $7.1 million has been earmarked for six IFC projects, five of which are in Latin America.

- *Private character.* IFC will invest only in productive private enterprise—either for expansion of an existing enterprise or for creation of a new one. It will not invest in government-owned or -operated undertakings or ones where government participates in management.

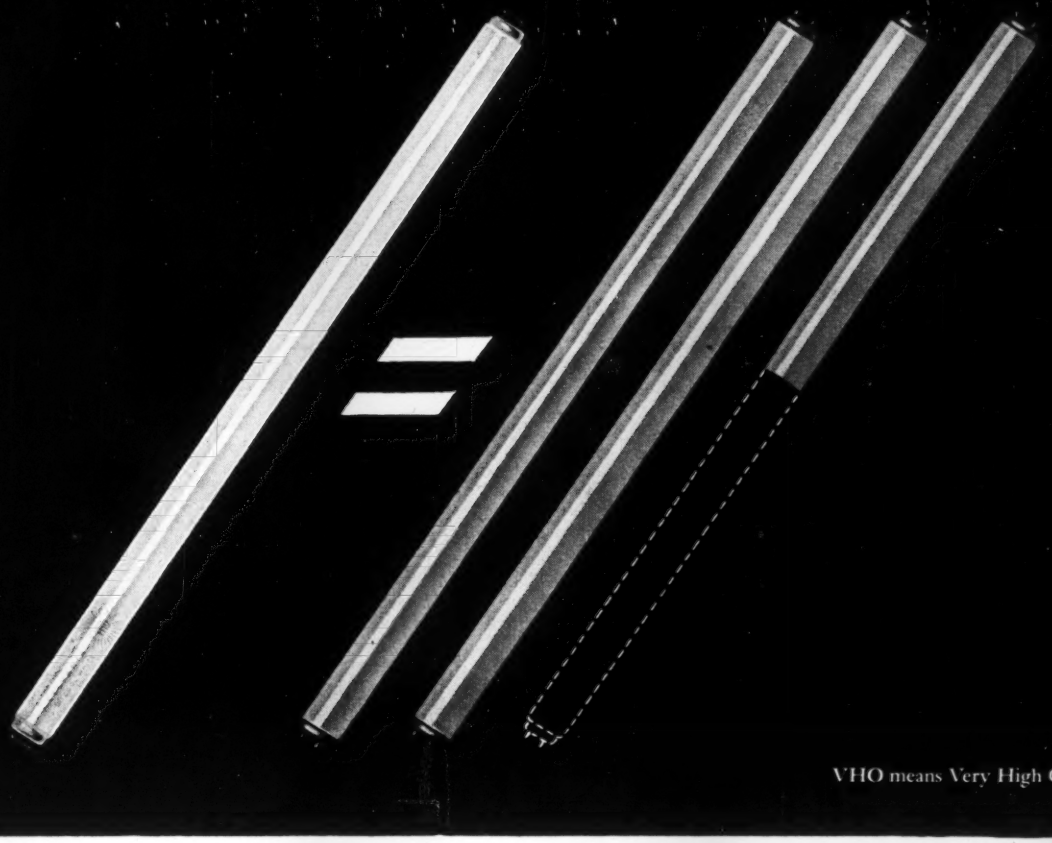
The International Monetary Fund at Washington (quota capital $9 billion), now in its eleventh year, is primarily concerned with promoting exchange stability among its 64 member countries and is more a central bank's bank. Though it is not involved in the actual financing of international trade, its activities in international currencies are an important index to watch in analyzing trade and investment prospects—and problems.

The World Bank (formal name: International Bank for Reconstruction and Development) at Washington began business in June 1946 with a $10 billion authorized capital (roughly one-third or $3 billion subscribed to by the United States) to provide long-term loans to member countries, now numbering 67, for reconstruction and development of productive facilities and resources. Included in its work program is technical assistance through survey missions. Unlike the IFC, which avoids foreign government participation, the World Bank works primarily with or through foreign governments. When loans are made to private firms, they must have local government sanction and/or guarantee. By



STEEL MILLS IN JAPAN: *New hot and cold strip mills (above) at the Chiba plant, near Tokyo, are part of Kawasaki Steel Corp.'s expansion program. Financed by a $28 million World Bank loan, the program will integrate operations and step up pig iron capacity.*

With no change in tube shape or size, new Sylvania **VHO** delivers as much light as 2½ standard fluorescent tubes



VHO means Very High Output

Another reason why

Sylvania Fluorescents give you more light at lower cost than all other brands

No other very high intensity fluorescents cost so little to buy and use – or maintain greater brightness throughout lamp life. The new VHO fluorescent lamp looks like any standard lamp—yet it delivers more than 2½ times as much light as lamps of identical size and shape. The initial cost of Sylvania VHO is appreciably lower than any other high intensity fluorescent lamps, and at no sacrifice in service or performance. VHO lamps keep operating costs to a minimum by giving you more effective, useful light than other high intensity fluorescent lamps.

SYLVANIA LIGHTING PRODUCTS
Division of Sylvania Electric Products Inc.
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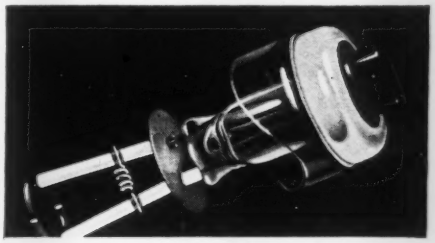

The secret of the VHO is the unique "Pressure Control Center" inside the tube. This exclusive development creates a cooler lamp interior that has enabled Sylvania to pack more than 2½ times as much light into a standard size tube.

SYLVANIA Lighting Products

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At the executive inquiry station of the IBM 305 Ramac, Wayne E. Brown, President, and Roger Shaul, of Big Bear Stores, get the up-to-the-minute inventory status of any one of 4,000 items instantly.

HOW IBM 305 RAMAC® HELPED BIG BEAR ADD 6 MORE STORES AND CUT INVENTORY 15%

Over one weekend, this $75 million chain cut over to the IBM RAMAC, mechanized its paperwork, solved its inventory problems and set a new pace for the zooming supermarket field.

Inventory control – a vital problem in most industries – is perhaps nowhere as challenging as in the hotly competitive chain supermarket field. Big Bear Stores has set a growing pattern for even the giants in this burgeoning industry by turning to the fabulous IBM 305 Ramac with its 5-million-character disk memory.

What can Ramac do for these businesses, and for any business where complex, fast-moving inventories are a problem? Here are some of the answers as given by Wayne E. Brown, President of Big Bear Stores.

Q. From a management point of view what is the most significant benefit that you get from Ramac?

A. In a word – control. For the first time in our existence we have inventory and the related details of ordering, storing, shipping and billing right under our thumb!

Q. Is inventory such a headache?

A. Well, it *was*. You see, we experience a 99% activity on 4,000 items each week. We operate 27 Big Bear supermarkets within a radius of 135 miles from our ware-

house. With Ramac our stores are assured that their order requirements will be met, as our buyers are now informed of stock movements on a daily basis. The only clerical operation is a pencil check on the store manager's order book.

Q. Has this automatic handling of inventory changed your operation in any way?

A. Not only our operation . . . but our whole concept of operating. Just think . . . we are now operating twenty-seven stores with *less* inventory and in 20% less warehouse space than we used to need for twenty-one! With one warehouse location and automatic order preparation, we've speeded our store deliveries by eight hours. Another thing, we've now leveled off the peak-and-valley work-load schedule and eliminated overtime that the old system demanded. What's more, costly special orders are no longer a problem.

Q. Is that all?

A. No, Sir. In our operation, as in most distribution businesses, there are a lot of special situations in pricing, billing, editing of orders, and so forth. You've got to stay on your toes to make certain these situations are handled correctly. With RAMAC special situations are recognized by the machine . . . and are handled automatically.

Q. Does the ability of RAMAC to do all the things you say have any effect on your competitive position?

A. Well, look at it this way. Whoever has the tightest control over the details of his business has the strongest competitive edge. Take the simple but important ability of Ramac to process orders on an order-to-order basis. We start processing orders at 8 in the morning and by 9:30, each day, the warehouse is starting to fill them. By noon the whole order-writing job is completed by Ramac. Just think what this means on merchandise that is widely advertised by the producer. And there is another fine feature; all special deals, substitutions, and allocations are handled automatically by the Ramac. No store ever misses out.

Q. If you're doing so much on Ramac now, how about your future growth with the system?

A. Ramac is doing plenty but it has enough capacity for our plans. Matter of fact, this was a vital consideration for us. We wanted a system we could install and not have to change in another couple of years.

Q. Is that the principal reason for choosing Ramac?

A. That was an important one. But, others figured, too. Perhaps as important as any equipment consideration was IBM's cooperation, service and sympathetic understanding of the problems of our business. In the grocery business we place a premium on good service. We make sure our customers get top service and evidently you fellows do, too.

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"The way you handle the details of ordering, storing, shipping and billing actually determines whether you are running your business or it's running you."

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PRESIDENT, BIG BEAR STORES, INC.
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year-end 1957 the World Bank had made 189 loans in 46 countries to a gross total commitment of $3.4 billion. Unlike other agencies, the World Bank goes to the private money market for funds, selling debentures both here and abroad.

These then are the major public sources for capital and credit financing. Their combined lending power (excluding the IMF) of approximately $16 billion might seem an adequate base for the present level of operations. But actually this capital and credit pool shrinks in size when you consider that:

- Slightly less than $6 billion is earmarked for U.S. companies through the Eximbank and the Development Loan Fund.
- Many outstanding commitments are long-term so that in any one year the available money on tap, through repayments and cancellation, is nearer $1 billion.

The recent request of the Exim Bank to have its lending authority increased by an additional $2 billion underscores the fact that current funds are inadequate for current needs.

The World Bank actually has drawn only $1.2 billion from Government capital subscriptions out of the $10 billion authorized. It has obtained roughly an additional $1 billion from flotations of its bonds, here and abroad, and developed additional lending scope by selling parts of its loans. These sales totaled $333 million by June 30, 1957. At that time it had available for lending under restricted conditions almost $1.3 billion. The previous pattern of World Bank loans shows only 30 per cent going to industry, agriculture, and multipurpose projects and 70 per cent to installations and development of power and transportation facilities. Also, of the funds disbursed, roughly 50 per cent was spent in the United States and some 40 per cent in Europe.

What about private sources?

There is no rigid formula for developing credit or capital facilities. The techniques employed today by the sophisticated international executive run the gamut in variety and combinations of means, depending basically upon the individual market and the individual method of operation. There are some representative procedures, but they are not always possible or effective in every market, nor in all categories of commodities.

Be sure to investigate the legal aspects of each procedure in each market

before you invest in the financing program under study. Check any course of procedure that deviates from the typical or normal with competent overseas authorities as well as with U.S. professionals. Finally, consider the feasibility of using overseas sources for credit and capital.

Some current credit techniques

Here is a rundown of a few (there are many others) of the usual and unusual procedures, with credit financing and capital formations separated although under some circumstances these activities may overlap.

- **Short-term financing under letter of credit.** U.S. banks with international affiliations usually finance exports by issuing or confirming letters of credit payable to U.S. exporters on instructions of overseas bank correspondents (or branches) at the request of the overseas buyers. By placing liberal lines of credit at the disposal of overseas bank correspondents, the U.S. bank expedites transactions—and helps build sales for the U.S. exporter, who usually prefers to work on a short-term basis.
- **Borrowing against outstanding letters of credit.** If goods are in inland transit or temporarily in storage awaiting export shipment, U.S. exporters can borrow by assigning the letter of credit proceeds, backed up by their own note.
- **Discounting export bills of exchange.** Shipments covered by time drafts (30-, 60-, 90-day or longer, or sight or date draft) can be discounted before maturity date. Banks may advance dollar receipts up to 100 per cent (less charges) of the face amount of the draft. But this is usually done on a "with recourse" basis and for some percentage less than the full value—60 per cent and 80 per cent advances are popular. And it must be remembered that the volume of discounts is usually controlled by the credit liquidity of the U.S. exporter and or his overseas customers on whom bills are drawn.

In exceptional circumstances a bank will take paper on a "without recourse" basis by granting a credit line to the overseas buyer and or his bank. A handful of companies are in the business of discounting bills of exchange "without recourse," but the risk premium is high, and only prime paper is usually accepted. One company reports financing export bills (to Latin America) at a rate varying from 1 per cent to 3 per cent depending upon the terms and the particular country involved. But there is a plus charge in per annum interest,

Now you can save up to 24¢ every time you make copies

WHEN YOUR SECRETARY uses an office copier—a Kodak Verifax Copier or any other—you trim costs by eliminating retyping and proofreading. But *how much* you save will often depend on the location of the copier.

If secretaries have to travel out of their departments to get copies—if they're away only 5 to 10 minutes each time—you're paying from 12¢ to 24¢ extra for your copies. (Have your own methods men check.) In other words, the *nearer* the copier, the *more* you save.

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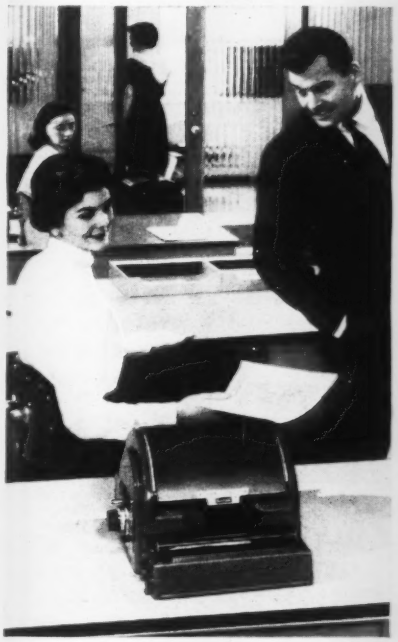
Realizing the need to cut "travel" costs and thereby cut copying costs, Eastman Kodak Company has designed a new Verifax Copier—the Bantam. And has priced it at $99.50 so that you can now make office copiers immediately available to everyone . . . like typewriters and telephones.

You Quickly Save Cost of each Bantam

Putting these capable copiers in every department of your business will prove the soundest of investments. Your savings in "travel time" alone will no doubt cover each Bantam's cost in a month or two. No one need take more than a few steps to get quick copies of orders, letters, reports—any of the myriad items handled daily in all departments. Nothing will so speed communications and cut copying costs throughout your company! And the Bantam—despite its unheard of low price—is a true Verifax Copier—gives you all the advantages of Kodak's *unique* Verifax copying method.



New Verifax Bantam Copier—only $99.50—makes 5 dry, lasting copies in 1 minute for 2½¢ each

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Mail coupon . . . or have your local Verifax dealer stop by and show you how capable the new Bantam really is. You'll find him listed in "Yellow Pages" under duplicating or photocopying machines.

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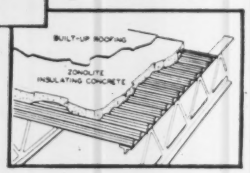

Revise old ideas of roof cost, like Eberhard Faber and many others! For your new construction or remodeling, add up these Zonolite vermiculite concrete roof savings:

1. **Fireproof.** Saves on sprinklers. Cuts insurance premiums as much as half.
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which ranges from 6 per cent to 10 per cent (low compared to foreign interest rates). Here again the rates quoted apply only to prime accounts. In the case of other companies, over-all charges of 5 per cent to 18 per cent for discounting have been reported. What marginal accounts carry in the way of charges is anybody's guess.

- **Loans to overseas buyers.** Unusual but possible, this type of accommodation can be arranged on intermediate-term transactions with or without recourse to the U.S. exporter. But the latter may be held liable for at least 25 per cent of the loan, and this type of accommodation hinges on the importance of the account or the client and like factors.
- **Export credit insurance.** To a minimum degree this facility exists in the Exim Bank, but it is a far cry from the scale on which such insurance is offered by many foreign countries, especially Canada, the United Kingdom, France, Germany, Belgium, Austria, Switzerland, the Netherlands, Sweden, Denmark, Norway, Italy, and Japan. Through so-called credit banks—some completely, and others partially, government-owned-and-operated—guarantees and discounts on export papers are offered to national firms to encourage exports. In some cases credits extending over four and five years are acceptable. Recently some U.S. companies have diverted foreign orders to their Canadian subsidiaries to take advantage of the credit insurance facilities available there.

Capital-raising techniques

You can, of course, bodily transplant your equipment, supplies, staff, and money abroad, once all the legal requirements of establishing a branch plant or licensing agreement are satisfied. In such a transfer your U.S. bank can be most helpful. But if capital is at a premium, the bank with international facilities can provide many underwriting facilities including:

- **Short- and medium-term financing** for the purchase here and abroad of capital equipment.
- **Developing working capital** on the spot through direct or indirect loans in local currency.
- **Issuing guarantees on standby credits** in favor of your local affiliate or licensee through local banks.
- **Expanding local currency working capital** by arranging dollar swaps involving an exchange of *spot* U.S. dollars for an equivalent amount of foreign currency when a *future* exchange contract (at an agreed rate) can be arranged.
- **Protecting (hedging) foreign currency receivables** by selling forward exchange. Or you can reverse this operation and pinpoint the cost of foreign accounts payable and even take advantage of prevailing discounts on forward transactions by buying forward exchange.

The facilities U.S. international banks offer are infinite. Explore them first, but don't overlook these other possibilities:

- **Short-term loans in local currency** from local private investors.
- **Loans from local government development banks or industrial development agencies.**
- **Bond flotations among local private investors.** Most typical are ten- to twenty-year first mortgage bond issues carrying roughly 6 per cent to 8 per cent interest.
- **Debenture issues** covering physical properties but carrying parent company guarantee (not possible in all markets). Usual term: ten years.
- **Short- or long-term loans from local banks** not necessarily affiliated with U.S. banks.
- **Short- or long-term loans from local insurance companies.**
- **Investment from local investors** through sales of shares whenever convenient and posssible. These can be written on a non-voting basis.
- **Investment by local management groups.**
- **Credits or swaps** from third country affiliations.
- **Providing capital equipment** under lease arrangements.
- **Obtaining short-, intermediate-, or long-term financing from international investment companies** both here and abroad.

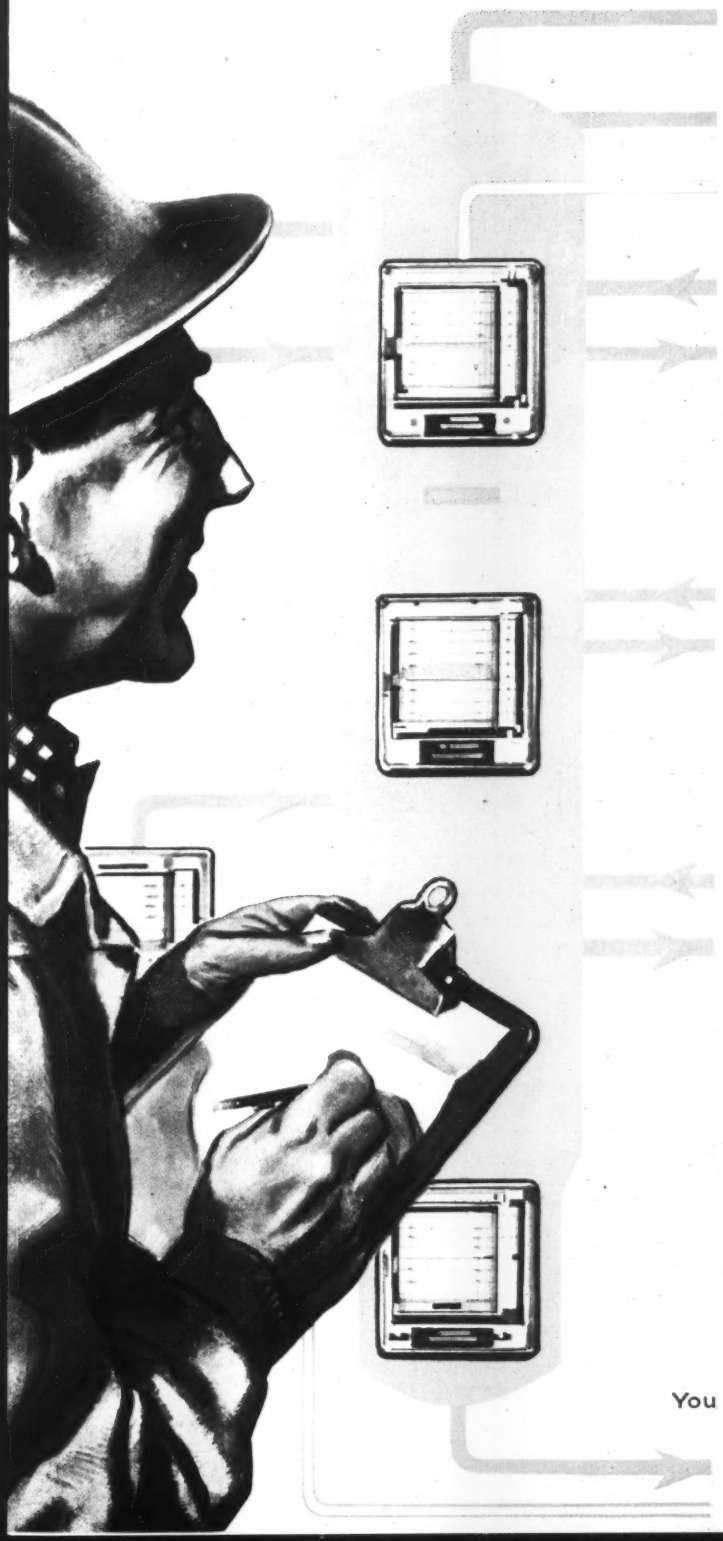
The Investment Development Division, Bureau of Foreign Commerce, Department of Commerce, is an important source of information. While it doesn't provide capital, it can and does direct American business men to sources of help in the United States. Some 40 private institutions here are in a position to undertake direct equity foreign investment or provide medium- or long-term financing to the company interested in investing.

But whether it's credit or capital you are seeking, the channel to overseas markets still has many twists and turns.

During the past decade U.S. international banking facilities have expanded rapidly under the mounting pressure of

Nothing gets by

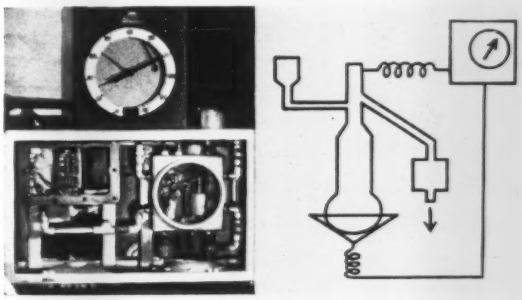
Automatic end-point testing device developed by Standard Oil research men makes certain of the uniform quality of gasoline and diesel fuel delivered to you.



Scientists at Standard Oil never stop in their drive to improve and then improve again the uniform quality of the petroleum products that bear the Standard Oil trade-mark. These engineering research scientists have now created wholly new instruments for performing near continuous physical analysis *automatically*.

One such instrument automatically performs the physical analysis that determines end-point. Using it, refineries maintain a continuous inspection of the temperature at which gasoline and diesel fuels are completely distilled. To you, this means that Standard is able to maintain a constant control over the uniformity and high quality of (1) the fuels you burn for heat or use to power your diesel engines and (2) the gasoline for your truck and passenger car fleets. It also means that Standard Oil power- and heat-producing petroleum products, with their constantly controlled end-point, burn uniformly, give you uniform high performance.

This is part of the research pay-out, the "something more" research builds into the products you buy from Standard. This is your return from Standard's investment in research. And now there are 48 district offices in the 15 Midwest and Rocky Mountain states to serve you. Call the one nearest you. **Standard Oil Company (Indiana), 910 South Michigan Avenue, Chicago 80, Illinois.**



Automatic end-point tester works this way. A small sample is placed in an electrically heated flask. The temperature is measured and recorded during a heating cycle when distillation is accomplished. Distillate is condensed and drained, the flask temperature is lowered by introduction of the next sample, and the apparatus is ready for another test.

You expect more from STANDARD and get it!

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Why lose respect and good will? Why not replace your old-fashioned scale with a *precision* Pitney-Bowes Mailing Scale?

TRY THE SILVER DOLLAR TEST!

A silver dollar weighs 15/16 ounce. If your scale reads an even ounce or more, you are too often *over*paying and wasting postage (as much as $100 a year on 12 letters a day!) If it reads markedly *less* than an ounce, you are *under*paying postage, and hurting yourself, as shown above.

Pitney-Bowes offers a complete line of *six* mailing scales for every office, even the smallest. Included is a shipping room scale for parcel post up to 70 lbs. Ask your nearest PB office for a demonstration—or send the coupon for free illustrated booklet.

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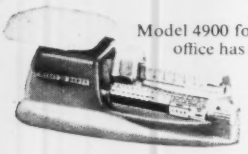

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Address _____

a heavy influx of bills of exchange, documenting both imports and exports. But with apparently more than half the export transactions carrying letters of credit or sight draft papers (DR&MI, December 1957, page 75), banks with international divisions have acted more as clearing houses than as underwriters of credit risks. Generally this is not the fault of the banking community but rather the reflection of a prevailing unwillingness on the part of most exporters to extend credit to overseas buyers because of their worry (and properly so) about the uneasy trends in world currencies. The cash on the barrelhead formula popularly adopted during prewar years by U.S. exporters continued through 1957. But 1958 may be a different story.

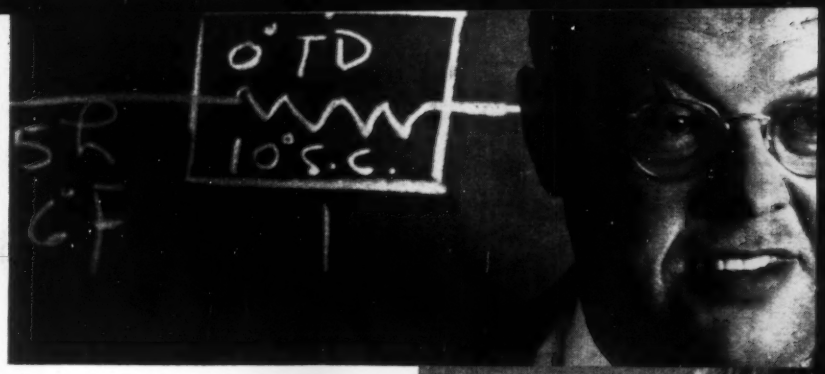
If dollar income from U.S. imports, investments, and travel—the main producers of dollar exchange abroad—begins to contract sharply, and if competition from the revived industrial complex of Europe and Asia intensifies, you can be sure that credit facilities will be revived for any "hard-sell" program overseas. To some degree, U.S. exporters can continue to carry their own credit paper, popularly known as time drafts. But the discounting of bills on a broad scale and pressure for a credit insurance program on exports may be revived.

Future outlook

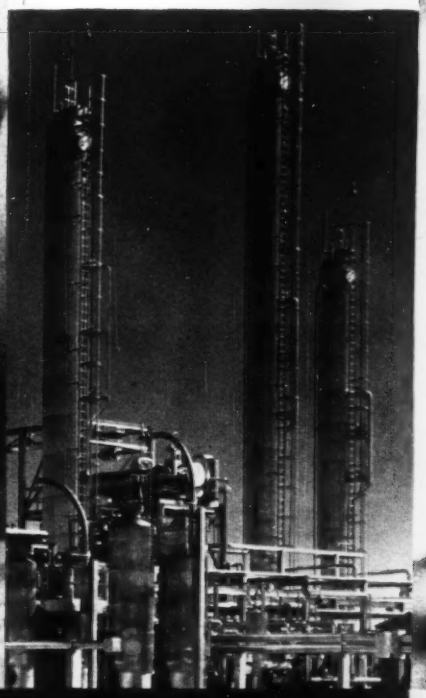
As more and more U.S. companies begin to eye overseas markets as a possible way to step up sales, credit may once again begin to look less a gamble and more a risk that must be taken if we are to hold our position in international trade. Tracking down credit facilities may go high on the agenda of company programs in 1958.

As to capital formations, here is what Harvey Williams, president of Philco International told a recent session of the International Management Association:

"The world-wide requirements of new capital during the next ten years will be far beyond estimates made by a continuation of past trend lines. The accelerated technological development in many different fields of endeavor will have an impact of an extent and character which the world has never experienced before. The desire of the less-developed nations quickly to improve their standards of living will force an accelerated pace in the provision of public works, the essential services, and the products of private enterprise." END



WHEN you consider expansion...
...the most important
investment you can make is in
the creative ability of men.



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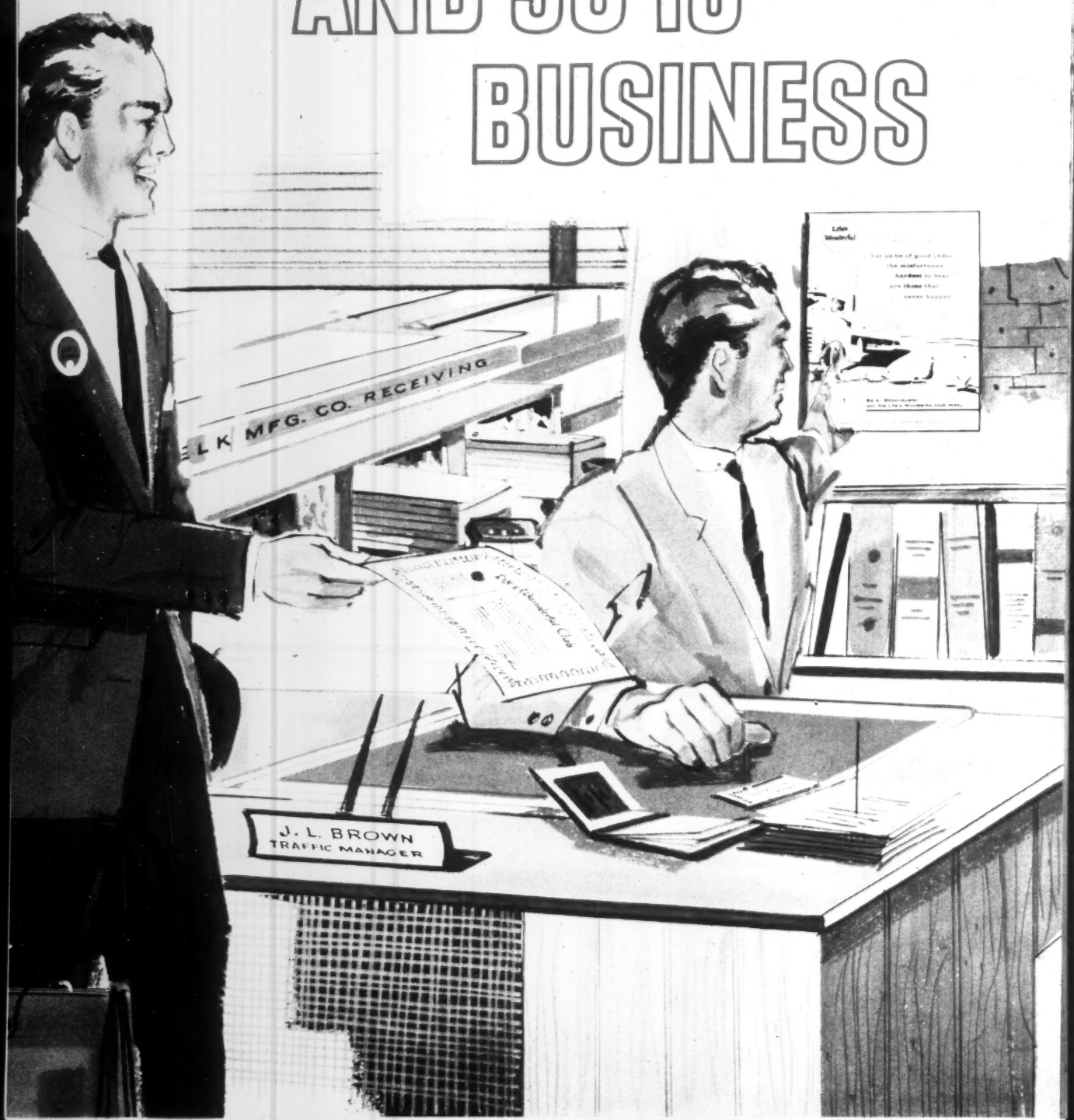
LIFE'S WONDERFUL... AND SO IS BUSINESS



SPECTOR MID-STATES

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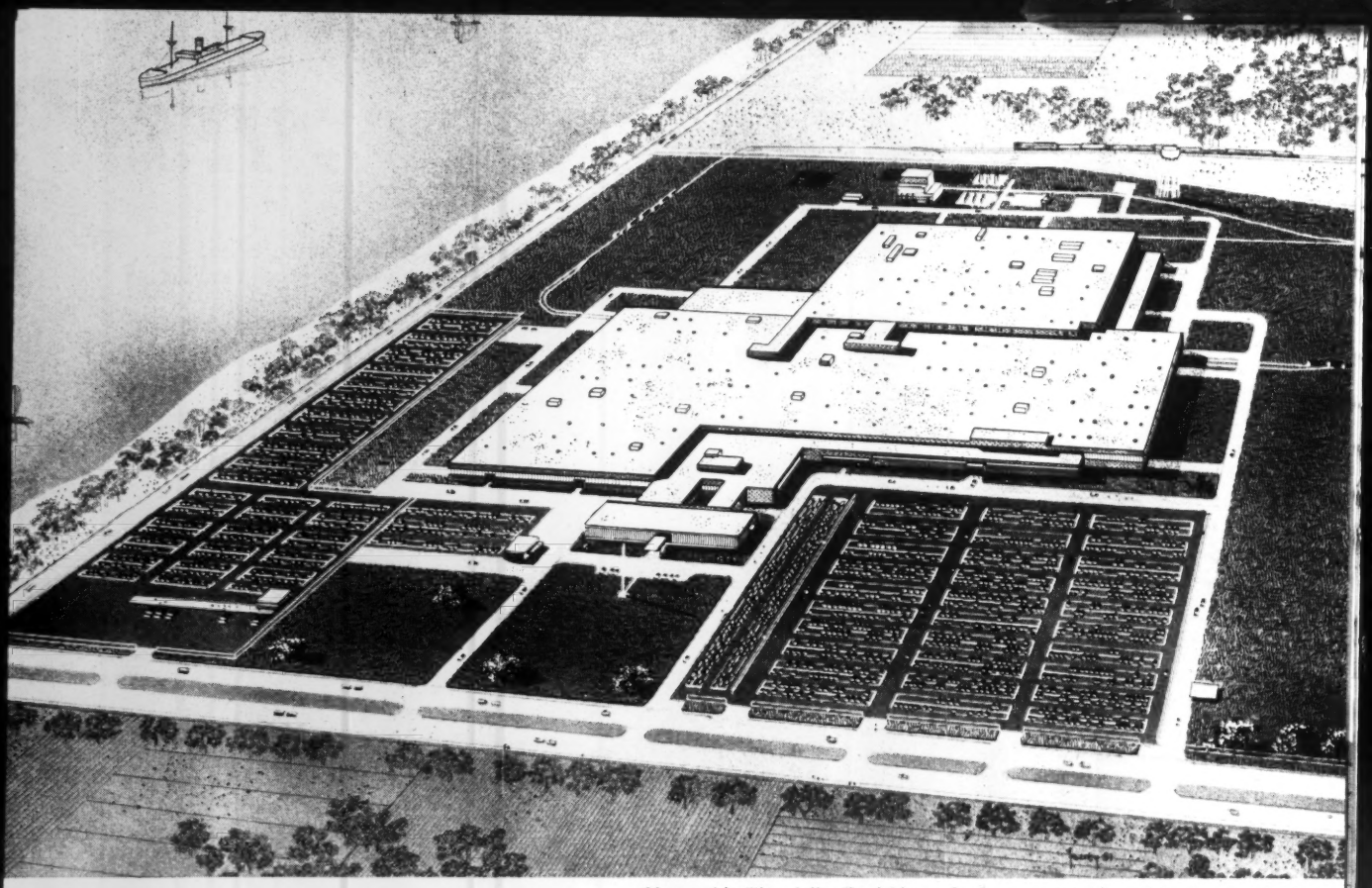

New multimillion-dollar Ford Motor Company automobile and truck assembly plant under construction on 203-acre site near Lorain, Ohio.

New York Central helps Ford find "perfect site" for new assembly plant

When the Ford Motor Company was looking for a location to build a new assembly plant, New York Central came up with several plant sites. A 203-acre location just west of Lorain, Onio, according to Ford officials, was a "perfect site" in meeting Ford's requirements.

New York Central Plant Site Consultants arranged conferences with various owners of the land . . . worked through Township Trustees for re-zoning . . . obtained co-operation of County officials for highway improvement and for construction of sewage facilities . . . arranged with various city and utility officials for adequate supply of water, gas and electric power.

New York Central has additional plant sites of 53 to 1500 acres in Lorain County, Ohio . . . several plant sites ranging from 15 to 650 acres in the adjoining Cuyahoga County . . . hundreds of other locations along the route of the New York Central Railroad.

Let New York Central be your source of reference for data on raw materials, natural resources, markets, labor, power and fuel, community services, etc., in locating a plant site to meet your needs. Our Consultants will help you choose the plant site most advantageous to you.

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New York Central can help you too!

- The services of our Plant Site Consultants, on a strictly confidential basis, are available without charge.
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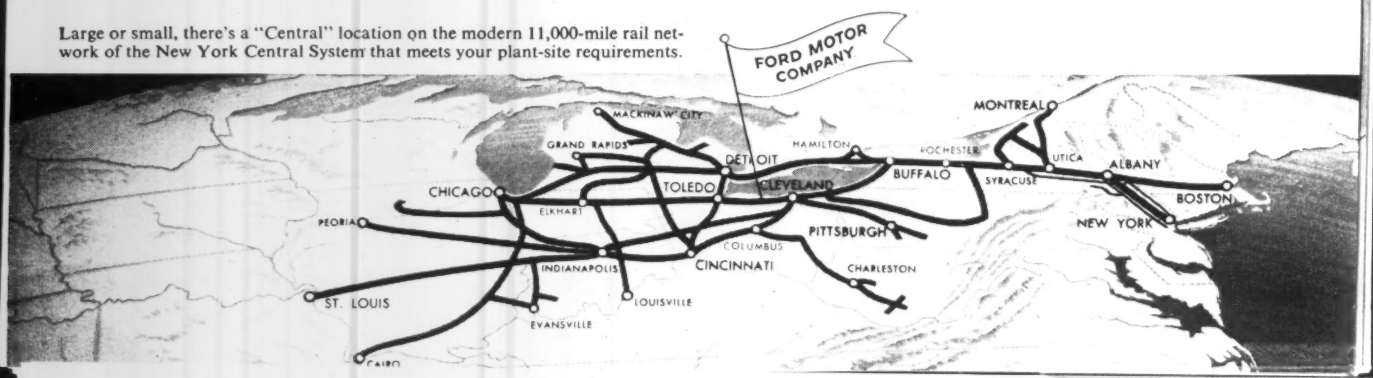
- We assemble the necessary acreage.
- Our staff aids in expediting plant construction in many ways.

Large or small, there's a "Central" location on the modern 11,000-mile rail network of the New York Central System that meets your plant-site requirements.



Extra Emphasis Feature

GOODS ON THE MOVE

New Horizons in Transportation

by THOMAS KENNY and CARL HEYEL

ABOUT THIS FEATURE

This special multi-part feature was prepared under the direction of Senior Editor Thomas Kenny. As in all DR&MI Extra Emphasis Features, the authors held intensive give-and-take round tables with scores of experts across the country. To these day-long sessions were added lengthy interviews with authorities among both shippers and carriers. Finally, a detailed survey of traffic management and physical distribution methods in 517 companies filled out the current picture on what management is doing in this important field.

Aiding in the planning, research, and presentation was management engineer Carl Heyel, whose background includes experience as assistant to the president of Lehn & Fink Products Corp., conference planning director of the American Management Association, and, most recently, director of planning for the Mergenthaler Linotype Company.

Better Transportation Is Up to Management 64
Companies are making bold efforts to stretch the transportation dollar and recapture lost markets.

A Shipper's-Eye View of America's Transportation System . . 66
A close examination, in chart form, of current advances and future developments in rails, roads, water, and air.

Traffic Executives Are Moving Ahead 68
Detailed survey results from 517 companies show the benefits top management can get from a good traffic department.

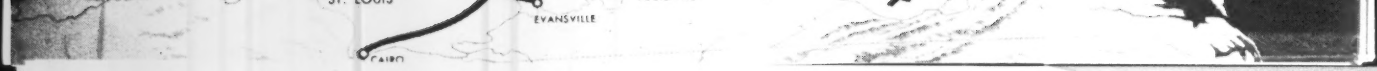
New Ideas for Better Transportation 79
Picture stories of new developments that are bringing results. Here's what shippers want from carriers today.

Companies Hit the Road 86
Fresh findings on how and why companies operate their own trucks—and how shippers' associations produce profits.

When Do-It-Yourself Trucking Pays Off 87
Here are the exact costs, as taken from operating records, of moving goods over the road between major markets.

How to Organize for Better Shipping 89
Case studies show how four companies are set up to deal with the diverse problems of getting goods on the move.

For information regarding reprints of this feature section, see box on page 126



GOODS ON THE MOVE

Better Transportation Is Up to Management

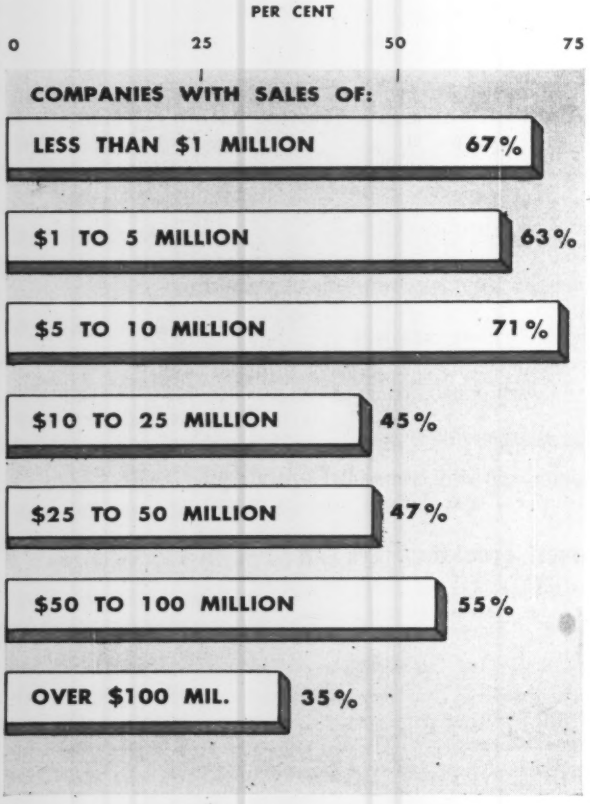
"DISTANCE, TIME, and money tie-up." These are the three elements cited by a distribution executive at one of DR&MI's round-table discussions as basic to management decisions for goods on the move. His terse summation wrapped up management's essential considerations in deciding on what transportation mode to use.

Today, profits depend on closely controlled inventories and a lot of pressure on production and delivery. In manufacturing, just a few days' delay may cause extra expense and even shutdowns in your own or your customer's plant. And where the sale is to the ultimate consumer, an item not on the shelf may mean a sale gone forever or, worse still, customers lost permanently to a competitor's brand.

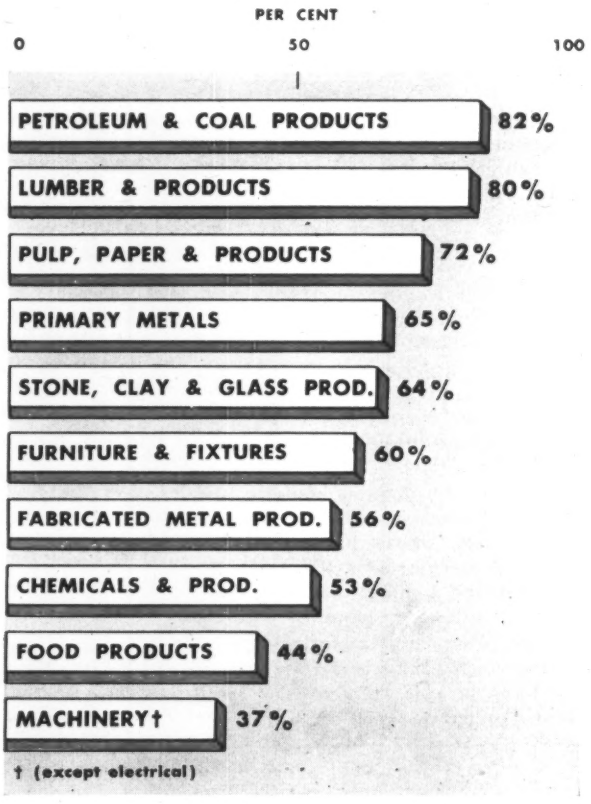
All this keeps the spotlight on trans-

Knocked Out by Transportation Costs

This chart shows a percentage comparison, by size groups, of the number of manufacturers forced out of markets by freight costs.



This chart shows a percentage comparison, by industry, of the number of manufacturers forced out of markets by freight costs.



portation—not merely in the sense of routes and tariffs, which were traditionally almost the sole concern of the traffic man, but in terms of the *total* problem of physical distribution. Transportation is increasingly thought of as a problem in industrial logistics. Ever-narrowing profit margins mean that good solutions must meet the increasing demands of customers, at less cost. These problems bring the traffic function into close relation with purchasing, production, sales and financial management.

"Transportation is a highly perishable commodity," says J. M. Cody, general traffic manager of Butler Brothers, Chicago wholesaler of consumer goods, $140 million sales. "Certainly in our retailing operations, we can't afford to move tomorrow's freight today. And yesterday's freight has already lost a part of its value if it isn't well on its way to keeping its assigned place in the chain of distribution. We deal in speed, inventory control, packaging, warehousing, and damage control. We have to know all we can about all the carriers equipped to serve us—railroads, trucks, freight forwarders, and airlines—their strong points and weaknesses. And the manufacturers who serve us must be just as much on their toes."

How is management keeping on top of this timely problem? In line with the growing awareness of the savings and improved profits possible through top executive coordination of all phases of transporting, handling, and storing goods, many companies are organizing these functions under a "director of distribution." This executive's responsibilities may also extend to warehousing, packaging, materials handling, and even allocation of production among plants.

A recent convert to this form of organization is the Hawaiian Pineapple Company, with the world's largest cannery in Hawaii and four mainland plants in California and Oregon. General Distribution Manager R. S. Denenholz, in charge of materials handling as well as traffic, credits the Lever Brothers plan (DR&MI, March 1955, page 59) with suggesting Hawaiian's set-up. Pillsbury Mills, Inc., has a similar organization (page 89).

Other companies have raised the traffic function to vice-presidential status when it comprises either direct responsibility for or a strong consultative voice in warehousing and materials handling. Sometimes, as at National Biscuit company (page 97), materials handling in production operations is also included.

On top of the problem

But the significant trend is toward management awareness, rather than organization changes, since the transportation of goods offers an opportunity for immediate reduction in cash outlay.

Materials handling costs may vary from 25 to 60 per cent of manufacturing cost. Transportation may account for as much as 50 per cent of the selling price. The National Association of Food Chains, for example, has estimated that when a housewife in the Chicago area pays 27.5 cents for a can of peaches, 5.5 cents, or 20 per cent, of that price goes for transportation charges. The Association points to eleven separate transportation cost items in moving a case of cling peaches from the packing plant in Gilroy, Calif., to a supermarket in Chicago. Recently, this Association met with members of the Grocery Manufacturers of America in a special conference aimed at solving this and similar problems.

High cost of transit

Distribution expense as a whole will vary from about 45 per cent for small appliances to approximately 55 per cent for the larger consumer articles and as much as 70 per cent for food products, especially fresh fruits and vegetables.

How can these costs be attacked systematically? Obviously, any sizable operation calls for detailed analysis, and not a simple prescription. Before making policy decisions on the specific kinds of carriers to be used, management should take a fresh look at the whole carrier situation in terms of the

continued on page 103

The Shipper Looks at Ways and Means

The shipper takes a sympathetic view of the transportation industry's internal woes—problems of regulation, "subsidies" for competing carriers, low return, and high taxes. But at the same time he also has his *own* problems of regulation, taxation, return on investment, and competition. So, the shipper's first interest is in what the carriers can do *for him*. How can they help him cut costs and improve service—and what future improvement can he count on to help him shape his pricing, service, plant and warehouse expansion, and location policies? On the next two pages DR&MI presents a "shipper's-eye view" of America's transportation—what's here now and what's over the horizon for goods on the move.

Knocked Out by Transportation Costs

Now, more than at any time during the past two decades, companies are scrambling to increase their markets. But many are discovering that the rising cost of moving goods has put them on a short tether. In fact, one out of every two of the 458 manufacturers who responded to a special DR&MI survey has been forced out of distant markets by rising freight costs.

This underscores the seriousness of the problem of getting goods on the move. Increasingly, cost-conscious customers are demanding better value and faster service. The company that can discover ways to offset rising freight rates will find itself in the lucky position of serving a market from which competitors have been forced to withdraw.

Companies most heavily hit by rising freight costs are those with a large freight bill in relation to the sales dollar. For instance, rising freight costs forced very few—only 9 per cent—manufacturers of instruments and similar products out of a market. But a big majority of manufacturers of bulk products like petroleum, lumber, and paper lost some markets.

Although 35 per cent of the giant companies have lost sales, almost twice as many small- and medium-size outfits have suffered. The geographical distribution of plants and warehouses characteristic of giant companies lessens their problem somewhat.

A Shipper's-Eye View of AMERICA'S

Shipping Mode	Advantages & Limitations
RAIL Despite regulation, taxation, and increased competition, rails still carry the greatest load of freight—630 billion ton-miles in 1957. The 113 class I roads ($3 million or more of annual gross operating revenue) account for 99 per cent of rail freight on 95 per cent of track. Railway Express Agency, owned by railroads, provides truck-rail-truck, door-to-door service to 23,000 communities. With ton-miles and net earnings down, rails are stepping up service to woo tonnage. They want more freedom in rate making and competition with trucks and pipelines.	• Most economical form of transportation for commodities in carload quantities for long hauls, except where barges fit needs. Reliable 24-hour operation, even in bad weather. With proper production scheduling, normal travel time can enable manufacturers to "use cars as warehouse." Increased volume can reduce average unit costs more for railroads than for any other type of carrier. Savings can be passed on to shippers. Railroads render advisory service on packaging for improved shipping. Railway Express and freight forwarders should be considered for small shipments.
PIGGYBACK Forty-seven class I roads furnish or participate in this service. Ten handle motor common carrier trucks. A few take shippers' trucks. Trailer Train Company, owned by nine railroads, has about 1,000 cars. Clejan-type cars can load and unload quickly and carry sizable portion of piggyback shipments. New York Central has turnable car—truck body slides on.	• Pick-up and delivery service. Marked economies for distances of 200 to 500 miles. Over 500 miles, boxcar is as economical as piggyback. Where service is used, lower rates may be negotiated. State weight restrictions are avoided. Required minimum weight is usually lower than for standard boxcar. Damages are less likely. Dunnage costs are lower. Savings on intervehicle handling of loads are significant.
HIGHWAY CARRIERS Carriers in Class I ($1 million or more of gross annual operating revenue) include 450 contract carriers, number about 3,000, and are subject to Interstate Commerce Commission regulation. Intercity common carriers handled about 75 billion ton-miles in 1957, of which some 62 per cent was less than truckload, compared with railroads' 99.5 per cent in carload. Use of tank trucks, smaller than rail tank cars but with faster turnaround, has jumped. Common and contract carriers want tighter control over illegal "buy and sell" arrangements made by truckers posing as private carriers to evade ICC regulation.	• Shorter transit time and flexibility: truck can start when loaded. Pick-up and delivery—especially attractive when customer has no siding. Unlike rails which offer only LCL and CL, motor carriers have several weight breakdowns. Motor carriers usually provide considerable service (driver helps load). Contract trucking provides "beck and call" service, usually at lower rates. Less handling reduces damage and claims. Private trucking combats rising transportation costs and meets individual delivery requirements. With private and contract, shipper can select equipment specifically suited to goods. Consider private trucking in relation to financing, maintenance, administration, volume both ways, avoidance of 3 per cent Federal tax, and so on.
AIR Combination carriers (cargo in passenger planes) offer 2,900 daily schedules to and from 650 cities. About 100 scheduled all-cargo planes serve 80 cities direct. Cartage extends service to some 4,000 communities. Air Express has 10 per cent of total cargo traffic. Air freight forwarders pool shipments at reduced rates. Air freight still moves under one-half of 1 per cent of all ton-miles.	• Five times faster than any other service. Single bill of lading covers shipment. Door-to-door service, flexibility (many flights), and interline coordination for uniform handling. Smoother ride reduces damage hazard. Other advantages: less packaging and pilfering. Air offers a new marketing tool. Mileage differential between air and surface, about 18 per cent, counterbalances cost per 100 pounds.
WATERWAYS Towboats of up to 6,000 horsepower push barge loads over 29,000 miles of navigable rivers and canals. The estimate of 123 billion ton-miles for 1957, 12 per cent over 1956, marked the twelfth consecutive yearly increase. Over 8 per cent of intercity freight, including petroleum, construction materials, iron, and steel, moves by river and canal. Great Lakes operations add another 118 billion ton-miles. There are 121 class A carriers ($500,000 or more gross annual operating revenues) including barge lines and coastal and intercoastal lines, all under ICC regulation. Private carriers not under ICC account for large amount of tonnage. ICC rules don't cover most bulk commodities, including liquids.	• Water is almost always cheapest for big loads of raw materials—fuels, stone, and semifinished, bulky products. Sheer tonnage makes up for slowness. Barges can be designed for any commodity, for example, molten sulfur, asphalt (steam-coiled barges), or liquid methane (refrigerated barges). Reliability: no longer dependent on clear weather. Movement of 10,000 to 20,000 tons, 24 hours a day, is common. Flexibility: quick pick-ups and delivery. Containerization combines waterway economy with door-to-door service. Savings can be made in over-all transportation for continuous loads of great bulk, but shipper may have to invest in docks and loading and unloading equipment. Tank vessels carry wide variety of chemicals, even wine and orange juice.
FISHYBACK Four trailerships are in coastal service between Atlantic and Gulf ports, using lift-on, lift-off method of hoisting truck bodies or containers. Ships can accommodate 226 30-ton bodies.	• Combines economy of water transportation with flexibility of door-to-door pick-up. Tremendous savings in handling are possible when shipments are containerized: 20 cents per ton vs. $4 to $5 for traditional palletized loading.

TRANSPORTATION SYSTEM

Developments to Watch

• Persistent delays at terminals are being cut by automatic switching and "pushbutton" yards. Dieselization program is just about complete. Several thousand machine-refrigerated cars now replace water-ice cooling. Over 50,000 freight cars were added in 1956–1957 (but rail spokesmen say tax depreciation rules may mean new shortage). AAR has stepped up work with shippers on packaging and improving "ride" of freight cars as well as methods of bracing loads to reduce damage claims. Equipment manufacturers are supplying improved damage-reducing and fast-loading cars.

• Simple dolly attachment now adapts any trailer body to Clejan-type car. Development in past year adapts container use to piggyback. Working with Fruehauf Trailer Company, Southern Pacific has been testing containers. Rock Island is also experimenting. By cables and winch, Clejan containers slide from truck to rail car in one and one-half man-minutes. Two trailer-van containers fit on one rail car.

• Increased use of trailer interchange speeds service and cuts handling. State size and weight allowances are still a problem. Trailers are lighter and have higher cubage. (One result: some bargains in used trucks. For example, a canned-goods shipper could use low-cubage vehicles.) Recent development is elevator principle: entire truck is leveled with dock or dropped to ground. Refrigerated transport has zoomed. Great advances in tank trucks for free-flowing materials, with resultant speed-up in loading-unloading. Truckers will work with shippers on loading-unloading economies. Truckers' savings on pick-up and delivery of 15 to 25 per cent with two-way radio are important in shipper's choice of carrier.

• Extensive ground modernization is under way in preparation for passenger jets in 1959. Door-to-door service is greatly improved by joint cartage. Rates are lower than when air freight was introduced in 1944. It's no longer solely "emergency" service. Traditional southbound freight traffic has led to special rates to build returns. Air freight is becoming competitive with rail freight.

• Location of industry along or near waterways continues to spark use of barges. In past six years, 2,500 plants have chosen waterside sites. Navigational aids such as radar and radio telephony have prevented delays caused by fog, night, or bad weather. On many hauls turnaround time equals that of other carriers. Seven years ago shippers had insufficient docking facilities, but the record pace of building continued in 1957. Barges are much larger. Some tows run to 30,000 tons. Improved diesel-powered towboats have up to 6,000 horsepower. Special barges are built for new products. Great Lake ports have embarked on multimillion-dollar pier improvements to handle more European as well as Mississippi Valley trade.

• Pan Atlantic has recently increased its fleet to four trailerships between Atlantic and Gulf ports. Plans are afoot for carrying loaded truck trailers on unused oar-boat deck space, Duluth to Buffalo.

Over the Horizon

• Stimulated by flat per-mile rate regardless of contents, use of standardized containers will replace truck bodies and boxcars. Containerized transportation will relieve congestion at plant docks. Other prospects: Container pools here and abroad. Better through scheduling of freight, with less time in yards. More freight cars for special-purpose shipment. Bigger tank cars and more piggyback and fishyback. Continued research, for example on an atomic locomotive. More elasticity in rate making. More "agreed charges"—rates negotiated for specific commodities. More mergers.

• Container transportation will receive tremendous impetus. Standardization of sizes will permit greater interchange. Railroads will coordinate service with motor carriers and may accept private carriers' trailers or truck bodies for piggyback. Railroads may standardize on most efficient type of piggyback car. Standardization in other countries, desirable for truck-rail-ship, will not occur in near future.

• Along with Federal road program, arrangements with toll authorities for "trackless train" combinations of two or three full trailers will develop regionally. The number of individual truck terminals scattered over large metropolitan areas will be reduced. Mechanization of accounting and operations at terminals and development of compartmentalized bodies for unitized materials handling will increase. Turbine engines will reduce maintenance costs, take less space, and provide more cubage for freight. There will be a great "breakthrough" in containerized transportation and better coordination of trucking with other forms of transportation. As for-hire rates go up, private carriers will increase.

• Few shipments of over 300 pounds will go by air freight for some years. Door-to-door air-truck service will extend to thousands of communities now without local truck connection to airport. Consolidated terminals will be built and auxiliary services will be improved to cut intermediate handling. Air cargo turbojet plane is probable by 1961, but most foreseeable improvements will be on ground.

• Further increase in barge ton-miles is expected for 1958 as the result of bigger loads and barges and more powerful towboats. Interchange of towing service between lines will increase, and coordination of dispatching will improve. Bottlenecks: inability of locks, channels, and terminal facilities to handle traffic of new plants on waterway sites, but large terminals will be built. Small, worn-out locks will be replaced with fewer larger ones. Gulf intercoastal waterways widened and deepened. St. Lawrence Seaway will make many Midwestern cities world ports. Widening of Calumet-Saginaw channel at Chicago will improve Great Lakes connection with Mississippi. Dual service equipment will eliminate cargo transfers at New Orleans and Chicago.

• Pooled containers will add impetus. Seatrain Lines will inaugurate "Seamobile," with two container sizes. Container ships for Detroit-Cleveland-Buffalo (Matson) and West Coast-Hawaii (Browning) are planned.

GOODS ON THE MOVE

Making the Most of Your Transportation Team

Like the Wizard of Oz, the traffic executive operates in a strange and marvelous realm. Beset by a rigmarole of regulations and a plethora of problems, he is nonetheless expected to make goods suddenly appear when needed—even when company-wide coordination is feeble or nonexistent.

Here, for the first time, is a detailed survey of a sizable sample of traffic management—517 companies in all—which throws a sharp light on current industry practice in getting goods on the move. It points up the benefits top management can achieve from a smooth-functioning traffic department.

MANY A PLANT cost-cutting program falls short of management's high hopes—for a painfully simple reason. Where there's little fat to be whittled from the internal plant operation, you can't push down plant costs substantially, short of layoffs or major expenditures for new equipment.

However, in the wide area between the end of the production line and the customer, companies are finding many opportunities for savings (see chart on opposite page).

Our survey shows that the most common way to save on transportation is through pooling or consolidations—deliberately setting aside small shipments until a carload or truckload is accumulated. Since the savings are sizable—they can run to 50 per cent—the advantages of consolidating seem obvious. But usually it requires careful planning to see that shipments moving in the same direction at the same time will arrive when promised.

In almost every situation, a company can find a cheaper way to move goods. But if time in transit is increased considerably, the investment in inventory increases proportionately.

For other measures taken by companies to achieve savings in goods on the move, run down this list to see if your traffic department has considered them:

- Negotiating rate reductions
- Auditing freight bills
- Choosing better routings
- Changing classification of goods shipped
- Taking advantage of fabrication in transit privileges
- Taking advantage of storage in transit privileges
- Setting up a shippers' association (page 86)
- Operating own truck fleet (page 87)

As traffic functions become more carefully and knowledgeably planned, traffic executives are developing various standards of performance to enable management to measure its effectiveness. About 20 per cent of the surveyed companies have set up performance standards, such as ratio of freight charges to sales volume; freight costs per hundred weight or per ton; number of pounds per manhour on the shipping dock. The first two do not truly reflect traffic efficiency, since the traffic manager has little control over general freight rates. And, of course, an increase in selling price can reduce the ratio of freight charges to sales.

One of the most common reports from traffic to top management is a summary of the savings achieved during the month, quarter, or year.

Some traffic managers admit that they must spend too much of their time justifying their own operation to top management. The chief way of doing this is by detailed reports on the savings they produced for the company during the past year. These savings are generally demonstrated on the basis of how much it cost to move about the same amount of material the preceding year.

Some over-zealous traffic executives include in their estimates of savings such intangibles as better public

ABOUT THIS SURVEY

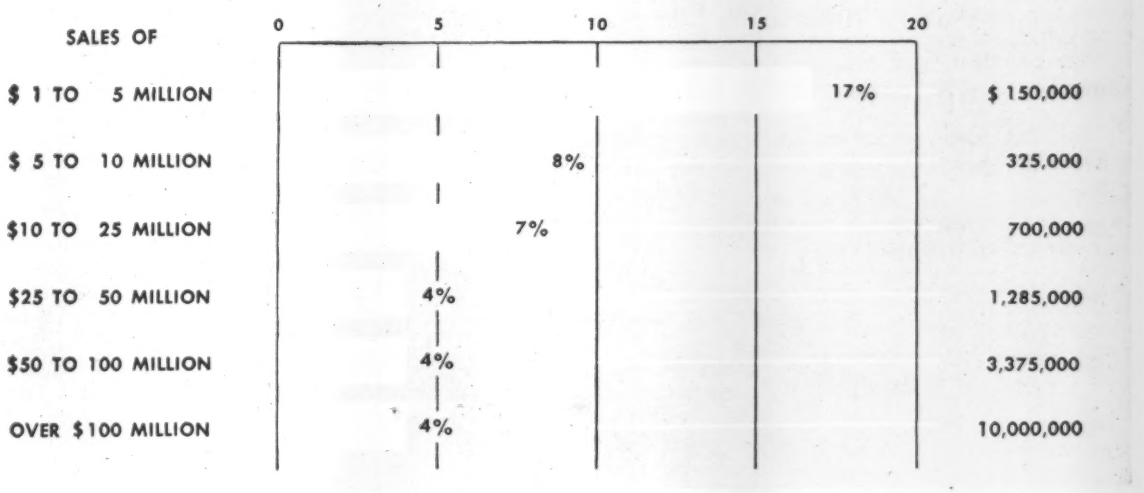
This new DR&MI survey of traffic management—the largest of its kind—is based on detailed replies to a four-page questionnaire received from 517 industrial executives in charge of transportation.

Most of the replies—458—came from manufacturers. These fell into the following size groups:

Annual sales	Percentage
Less than $1 million	2
$1 to $5 million	16
$5 to $10 million	13
$10 to $25 million	23
$25 to $50 million	14
$50 to $100 million	12
Over $100 million	20

The remaining 59 replies came from wholesalers and distributors (44), retailers (7), mining companies (4), and others. About 80 per cent of these had a volume of $5 million or more.

The largest number of replies from manufacturers were from chemical companies (13 per cent) followed by food and machinery producers with 12 per cent each. Among the other industries were: producers of fabricated metals, 11 per cent; stone, clay, and glass products, 9 per cent; electrical machinery, 6 per cent; paper and pulp products, 6 per cent; primary metals, 6 per cent; furniture and fixtures, 4 per cent.



Medium-size manufacturers chalked up the largest savings (percentagewise) on average spending last year for in- and outbound freight.

relations. This usually occurs when the unpleasant issue of reciprocity raises its head. When a carrier is also an important customer, some companies make the use of the customer-carrier's facilities a matter of policy. So their traffic executives are understandably inclined to put a price tag on their effort to please their own best customers.

Sometimes the valid, tangible savings are compared with those of preceding periods, but since savings frequently reflect the correction of undesirable situations, a point should be eventually reached where savings decrease steadily. For instance, the traffic executive in a metal-working company says: "We locate situations that are inefficient and costly, such as demurrage, rates, and labor costs in handling. Then we correct the conditions and report the results in the form of charts."

False yardsticks

Too frequently, some traffic executives complain, their operations are judged simply by their ability to get a travel reservation quickly for the top brass or by the lack of customer complaints about deliveries, without consideration of the fact that the same results might be achieved at less cost.

The savings gained last year by the surveyed companies (see chart) ranged from as little as $2,000 to as much as $5 million. Company size was an important factor here, of course. Amount of savings achieved also varied noticeably among industries. Economies scored were generally much higher in the chemical and stone-clay-glass industries than in fabricated metal products and furniture and fixtures.

Increasing the load

Although many traffic departments have made sizable savings and attained greater recognition in the corporate structure, most are still struggling under burdens that seriously reduce their efficiency. Traffic executives in the 517 surveyed companies list dozens of different causes of waste and inefficiency, ranging from authority (not enough) to paperwork (too much). But the most common drawback is the lack of complete coordination and cooperation between traffic and other departments like sales, purchasing, and production. The traffic managers generally attribute this lack to top management's unawareness of the gains that can be scored through better coordination.

Traffic executives sometimes feel they are trapped in a vicious circle. For the lack of top management support results in straitened budgets, which result in hiring inexperienced personnel, which in turn reflects on the importance of the traffic function in management's eyes.

The top traffic executive in an electronics company offers one solution to the coordination problem. He says: "There is insufficient lead time on purchase orders to allow the supplies to be shipped in via the most economical method of transportation. And the lag time between the moment when customers' orders come in and the shipping order is received in the shipping department often means the difference between fast and delayed delivery and high and low costs. A short memo indicating dollar losses sent to the sales manager with a copy to the vice president will do more than a dozen phone calls to the same sales manager. Traffic managers should use the weapons of the paper war to promote transportation efficiency."

New prestige for traffic men

During the years since the end of World War II, there has been a significant upgrading in the traffic executive's position on the corporate totempole (charts, page 70). Now, whatever his title—vice president-traffic, traffic director, or traffic manager—he very often reports to a higher level. And this growth in recognition has accelerated of late. About 60 per cent of the upgradings have occurred

in the course of the past four years.

Consequently, the number of traffic executives who report to top management has increased significantly as the benefits of improved traffic management become clearer (chart, page 69).

Top management is defined as the president and the executives reporting directly to him, for example, the executive vice president, vice president, treasurer, secretary, and general manager.

Of the 458 traffic executives in manufacturing, these percentages report to:

Executive	%
Vice president	30
President	25
Executive vice president	10
General Manager	6
Treasurer	3
Secretary	1

The rest reported, in these percentages, to:

Executive	%
Plant manager	7
Production manager	4
Purchasing agent	4
Comptroller	2
Sales manager	2
Others	6

The "others" to whom traffic managers report range from an office manager to such diverse executives as service manager, finishing supervisor, merchandising manager and manager of planning and scheduling. In one company the traffic manager reported to an executive committee rather than to an individual executive. An interesting sidelight: In companies with sales under $10 million, more traffic men (about one-third) report to the president than to any other executive. In over-$10-million companies, about one-third report to a vice president.

Other losses

And about one-third of the vice presidents to whom traffic executives report are vp's of manufacturing; about 25 per cent were in charge of sales or distribution; about 16 per cent were general or administrative vp's; and about 5 per cent were vice presidents of purchasing. One traffic manager reported to the vice president for planning and development, another to the vp in charge of staff services, and a third to the vp-technical director.

In addition to poor coordination and weak support by top management, traffic executives are also bedeviled by too much paperwork. Many yearn for paperwork automation to release manpower for more creative tasks. Says the traffic executive in a chemicals company: "There's too much time consumed in interpreting complicated, double-meaning, pointless, useless, misleading tariff provisions and also in trying to bring tariffs up to date."

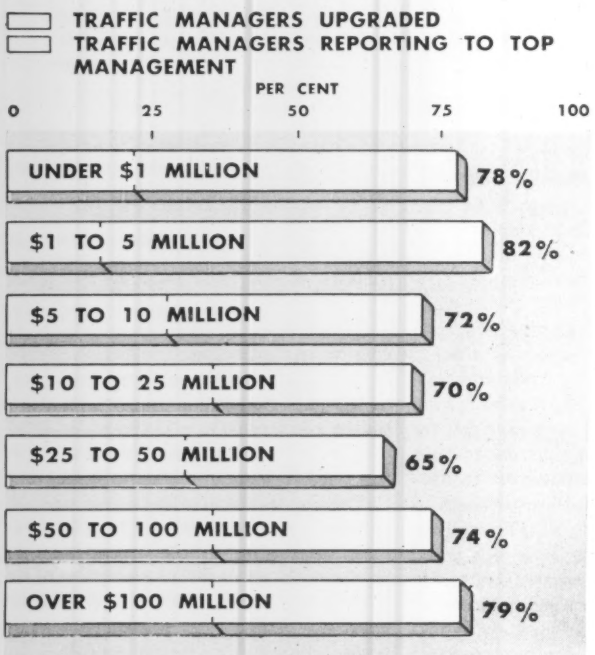
Too much red tape

Another traffic manager says that the main drag on his department is the "wasteful, costly, time-consuming procedure necessary to check freight rates due to antiquated, voluminous carrier tariffs. As I see it, there has been no effective tariff simplification program beneficial to users. Real savings would result for both shippers and carriers from a realistic tariff."

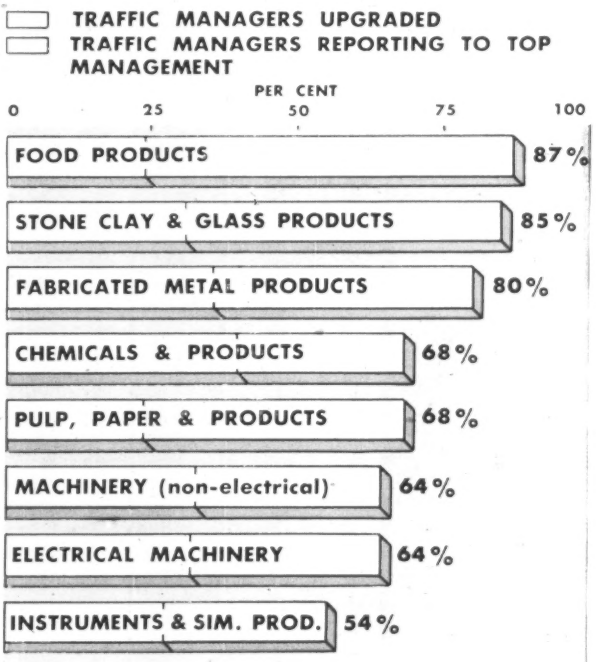
Among the other causes of tariff department inefficiency uncovered in this survey were:

- Interference by other departments in traffic matters

Traffic Executives Now Often Report to the Top

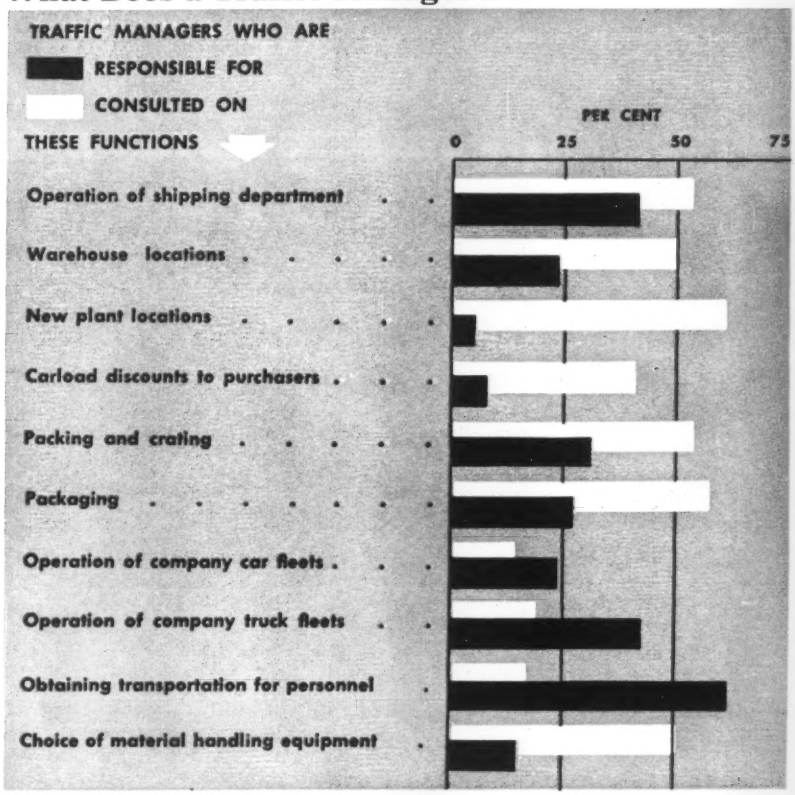


Among manufacturers with sales of $25 to $50 million, 65 per cent of traffic managers report to top management, compared with 82 per cent in concerns with sales of $1 to $5 million. Upgrading has been most marked in the $10-to-$25-million group.



In the food industry, 87 per cent of the traffic managers report to top management, but only 54 per cent do so among manufacturers of instruments. Traffic's most significant upward strides during the postwar years have been achieved within the chemicals industry.

What Does a Traffic Manager Do?



GRADING THE JOBS: *Here's how 517 responding traffic managers rated the importance of their routine duties.*

TRAFFIC DEPARTMENT ACTIVITIES	ORDER OF IMPORTANCE					
	#1	#2	#3	#4	#5	#6
Determining rates	110	62	39	24	18	16
Choosing best routing	88	75	68	48	35	19
Seeking rate reductions	65	43	46	37	33	33
Selecting carriers	28	43	22	33	30	27
Auditing freight bills	23	51	55	71	55	46
Consolidating shipments	19	32	41	27	26	25
Determining proper classification	18	32	35	38	34	12
Maintaining tariff files	15	17	21	22	21	30
Supervising shipping department	8	14	5	6	4	6
Tracing shipments	7	23	44	44	61	56
Operating shipping department	5	1	2	0	0	0
Filing claims	2	5	9	19	22	22
Obtaining personal transportation	1	0	0	2	5	11

VARIATIONS IN DUTIES: *Here's how the responsibilities of traffic managers in manufacturing vary with the size of the company they work for.*

FUNCTION	SALES OF		
	Less than $1 million	$1 to $10 million	Over $10 million
Operation of shipping department	33%	51%	37%
Warehouse locations	0	22	26
New plant locations	22	4	4
Carload discounts to purchasers	22	19	7
Packing and crating	22	37	29
Packaging	22	32	23
Operation of company car fleets	22	16	27
Operation of company truck fleets	33	35	46
Obtaining transportation for personnel	33	42	69
Choice of materials-handling equipment	11	14	14

- Mistakes in routing of shipments
- Needless use of premium transportation
- Errors in classification of goods shipped
- Too much time spent in obtaining travel reservations for top executives
- Failure to control the routing of incoming materials shipped FOB the plant
- Lack of trained personnel

Here's how one executive tersely sums up the three most common errors in this area:

- The traffic manager doesn't report to top management
- The traffic manager has no traffic training
- Or—worst of all—there just isn't any traffic manager

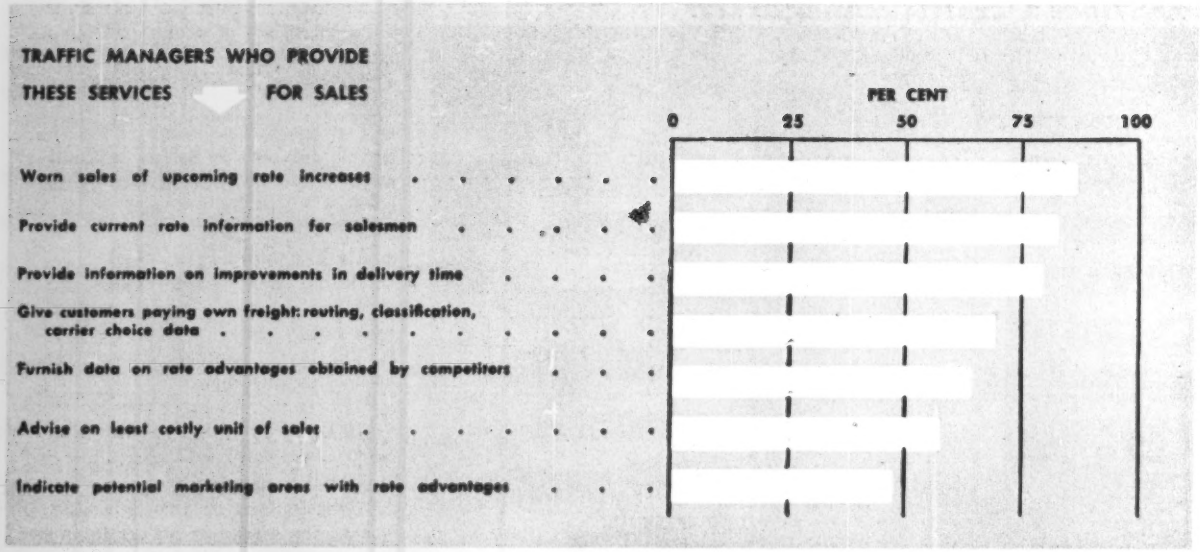
Perhaps one of the difficulties in selling top management on the importance of traffic results from the personal temperament of the man who is attracted by a job that involves a mountain of detail. Says one traffic executive: "Any good traffic manager sees many things that should be investigated and improved. But traffic people are introverts who have difficulty in getting top management to listen long enough to understand what traffic is doing and could do if given more authority."

In addition to the routine functions of the traffic department shown at left, traffic managers frequently take on other responsibilities.

Traffic managers were responsible for operating the shipping department in only 20 per cent of the lumber manufacturing companies, but 68 per cent of traffic managers in fabricated-metals plants had that responsibility.

In the food industry 42 per cent were responsible for choosing plant locations, but the percentage dropped to 10 per cent among lumber manufacturers. About 53 per cent of machinery manufacturers place the responsibility for packing and crating in the lap of the traffic manager, compared with 20 per cent for rubber products.

The operating of company truck fleets is the responsibility of traffic managers in 69 per cent of the concerns manufacturing transportation equipment, compared with 21 per cent for primary metals producers. And 80 per cent of the rubber products traffic managers are responsible for obtaining travel reservations for personnel, compared with 35 per cent in the furniture industry.


TRAFFIC MANAGERS WHO PROVIDE THESE SERVICES FOR SALES
PER CENT
0
25
50
75
100
Warn sales of upcoming rate increases
Provide current rate information for salesmen
Provide information on improvements in delivery time
Give customers paying own freight: routing, classification, carrier choice data
Furnish data on rate advantages obtained by competitors
Advise on least costly unit of sales
Indicate potential marketing areas with rate advantages

Percentages refer to the number of traffic managers in 517 responding companies who provide these services to sales departments.

Traffic managers provide a wide variety of services to their sales departments. The chart above shows to what extent sales departments in the 517 surveyed companies are getting the services that they need from traffic, and how many companies are not taking advantage of all the benefits that traffic has to offer.

Help for customers

In addition to these charted services for the sales department, traffic managers sometimes help the sales department by giving special aid to customers. Several companies report that their traffic managers regularly provide freight bill auditing for customers. Others file damage claims for customers and work out their commodity rates, even when customers pay the freight.

Some traffic departments make a special effort to provide the sales department with the freight costs on each shipping unit. And one large manufacturer of electronic equipment reports that the traffic department provides customers with solutions to materials-handling problems.

In addition to the service for the purchasing department shown in the table at right, traffic managers increasingly strive to gain control of the transportation of inbound materials. About 15 per cent of the surveyed companies report that they specify routing for purchased supplies. About

continued on page 121

Traffic Managers Provide These Services

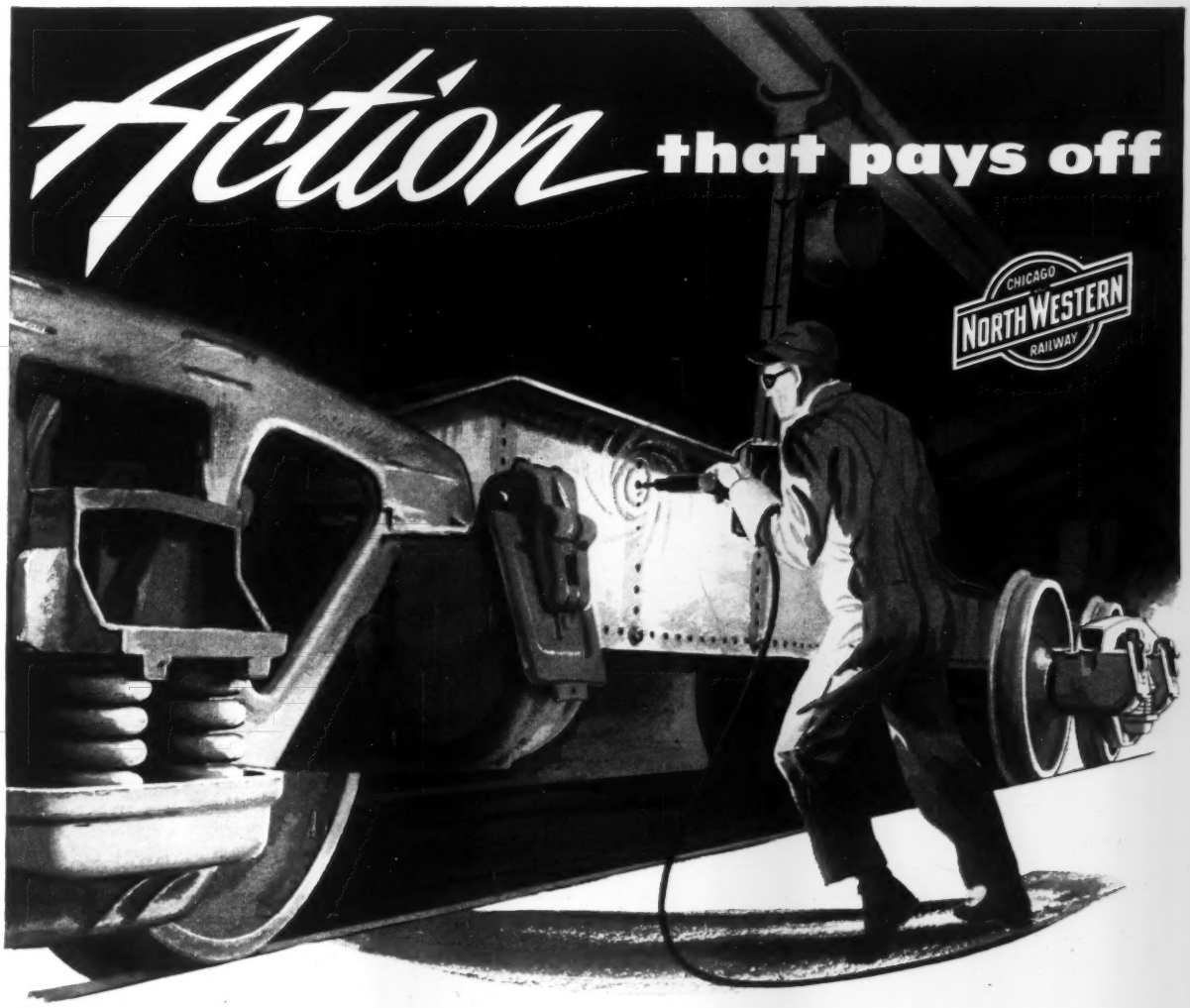
The three tables below show the proportion of traffic managers in manufacturing companies of various sizes who provide each of the services listed to the sales, purchasing, and production departments.

SERVICES FOR SALES DEPARTMENT	Percentage of companies by sales volume: Less than $1 million	$1 to $10 million	Over $10 million
Warn sales of upcoming rate increases	88	82	87
Provide information in improvements in delivery time	88	72	81
Provide customers who pay own freight with routing, classification, and carrier selection information	88	66	67
Furnish data on rate advantages obtained by competitors	78	53	69
Indicate potential marketing areas with rate advantages	78	34	51
Supply current rate information for salesmen	78	80	84
Advise on least costly unit of sales	56	49	60

SERVICES FOR PURCHASING DEPARTMENT	Percentage of companies by sales volume: Less than $1 million	$1 to $10 million	Over $10 million
Indicate purchasing areas with lowest rates	67	39	63
Warn of upcoming rises in freight charges	67	73	87
Advise suppliers who shop FOB of ways to reduce freight charges and so help to cut cost of materials purchased by company	67	44	70
Advise on least costly unit of purchase	56	54	74

SERVICES FOR MANUFACTURING DIVISION	Percentage of companies by sales volume: Less than $1 million	$1 to $10 million	Over $10 million
Advise on materials to be used in new products to get lowest freight classification	44	30	36
Advise on in-transit processing opportunities (at minimum freight cost)	44	30	36

Action that pays off



A freight car every 15 minutes! *Our new car shop at Clinton, Iowa, now in full operation, is geared to produce 8,000 new and rebuilt freight cars annually.*

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(3) MARINE TERMINAL FACILITIES—Brochure describes marine terminal facilities on both New York and New Jersey sides of the harbor. Includes facilities for handling specialized cargoes.

(4) NEW YORK HARBOR TERMINALS MAP—20" x 27" four color map. Pinpoints terminal and transportation facilities at a glance.

(5) GUIDE TO CONSOLIDATED SHIPMENTS—A clear explanation of how shippers may consolidate LCL export freight into carload or truckload consignments to make significant savings.

(6) DIRECTORY OF EXPORT PACKERS—How to save money by utilizing export packing facilities at the Port of New York. Listing of export packers, their railroad service connections, commodities handled, and specializations. Also includes Tariff 170-A.

(7) GUIDE TO AIR SHIPPING—A 40-page reference book, describes air shipping, both international and domestic, and outlines Port of New York airport facilities available to shippers.

(8) TRAFFIC ADVICE CHECK LIST—A description of ten separate current Traffic Advices which deal with privileges made available to export and import shippers by carriers serving the Port of New York.

(9) PORT DISTRICT TRANSPORTATION MAP—In four colors, 38" x 50", shows piers, rail and truck arteries, airports and a host of other useful features pertaining to the world's greatest port. Ideal for framing and wall display.

(10) "VIA PORT OF NEW YORK" FILM—A 27-minute, 16mm. sound and color film depicts the Port of New York in action, handling 200,000,000 tons of commerce each year. Available to export and import shippers, trade and transportation associations, chambers of commerce in eastern and midwestern states.

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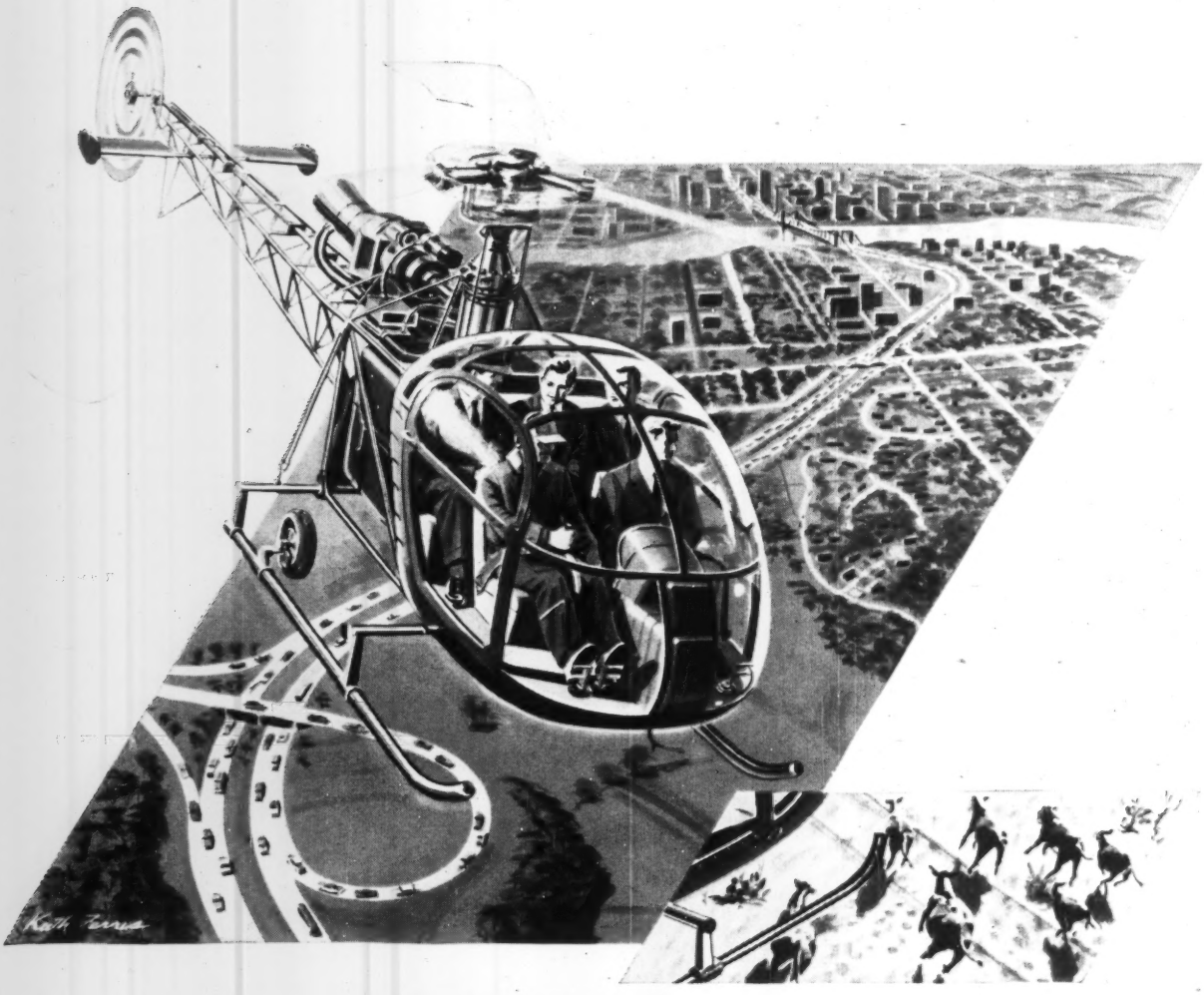

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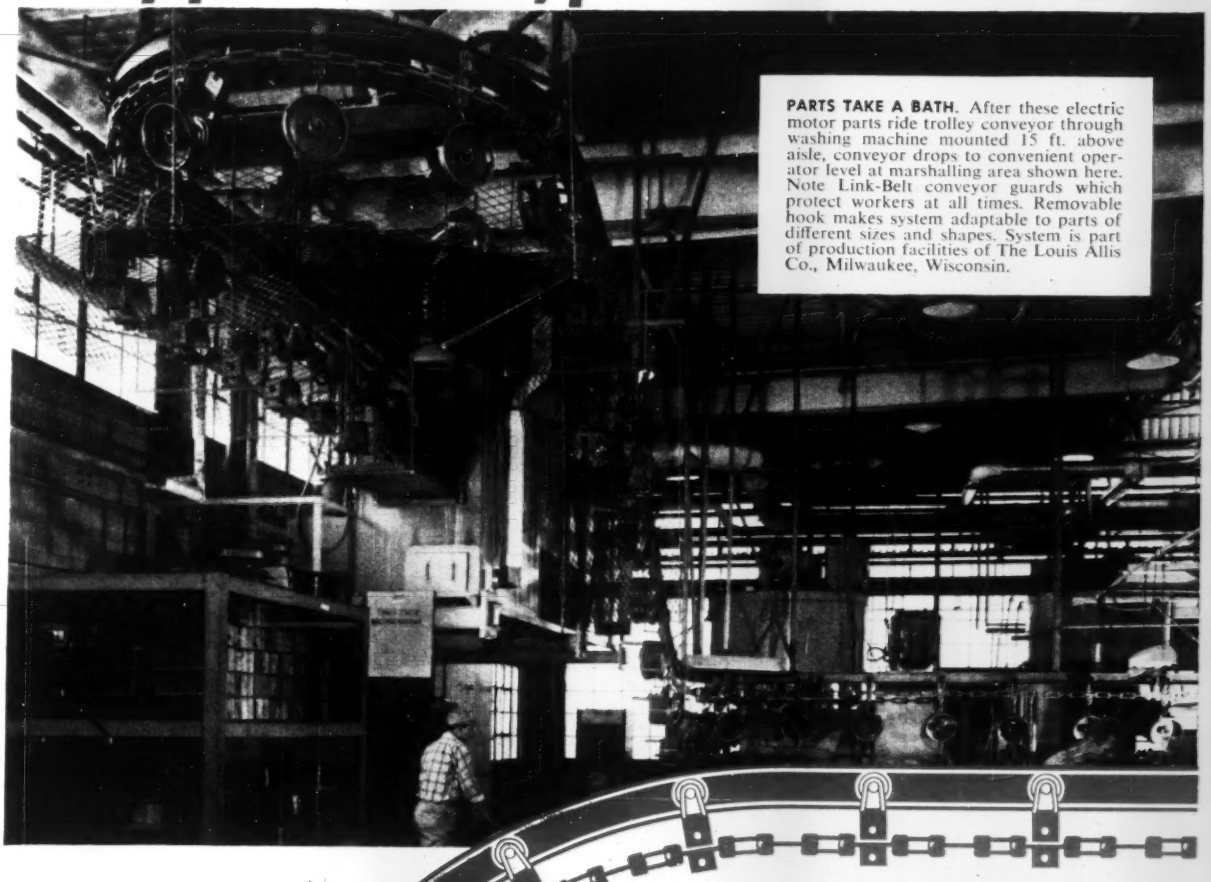
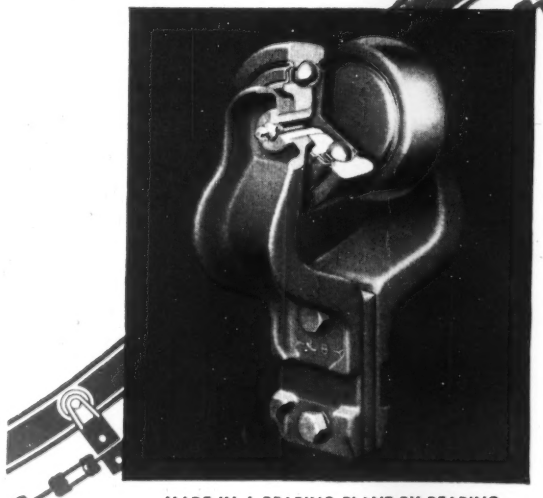
LINK-BELT Trolley Conveyors . . .

carry parts above, protect workers below



PARTS TAKE A BATH. After these electric motor parts ride trolley conveyor through washing machine mounted 15 ft. above aisle, conveyor drops to convenient operator level at marshalling area shown here. Note Link-Belt conveyor guards which protect workers at all times. Removable hook makes system adaptable to parts of different sizes and shapes. System is part of production facilities of The Louis Allis Co., Milwaukee, Wisconsin.



MADE IN A BEARING PLANT BY BEARING SPECIALISTS. Precision-made Link-Belt ball bearing trolleys are designed to maintain continuous rolling contact in all positions of operation. Hardened, concentrically ground raceways, accurately cage-spaced balls, frictionless labyrinth seals —all assure smooth trolley operation.

There is practically no end to the variety of parts or products that can be *safely* and *efficiently* transported by Link-Belt Overhead Trolley Conveyors. This installation is a particularly good example of how they can be adapted to carry a wide range of part sizes in perfect safety without costly building alterations.

Link-Belt Trolley Conveyors can streamline your operation wherever an uninterrupted flow of materials along a fixed route is desired. They put ceilings to work . . . save floor space . . . permit low cost movement of materials between rooms, floors or buildings . . . improve working conditions and assure effective use of manpower. Sharpen up your in-plant materials movement operation—reduce handling costs. Our engineers can analyze your methods and make recommendations from industry's most complete line of materials handling equipment. Call your nearest Link-Belt office or write today for Trolley Conveyor Book 2330.

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This is the time of the pinch, the profit squeeze. Call it what you will, keeping costs down, finding ways to make less money do more work is one of management's prime objectives today. Our transportation specialists have been able to help many companies effect unexpected economies in transportation and at the same time speed up shipments. They can help you, too. Have someone in your organization check with Interstate System on your transportation needs. We're in the Yellow Pages.

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More than a truck line — a transportation system.

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GOODS ON THE MOVE

New Ideas for Better Transportation

Both shippers and carriers are working hard at improving ways to get the goods to market.

HOW FAR SHOULD top management go now in gearing its plans to new trends in shipping? What key developments are firing the imagination of executives responsible for physical distribution in industry? The 517 traffic executives who responded to a special DR&MI survey listed these in order of importance:

- Piggyback
- Common carrier trucking growth
- Fishyback
- Door-to-door air freight
- Specialized freight cars
- The boom in private trucking
- Damage-reducing boxcars
- The St. Lawrence Seaway

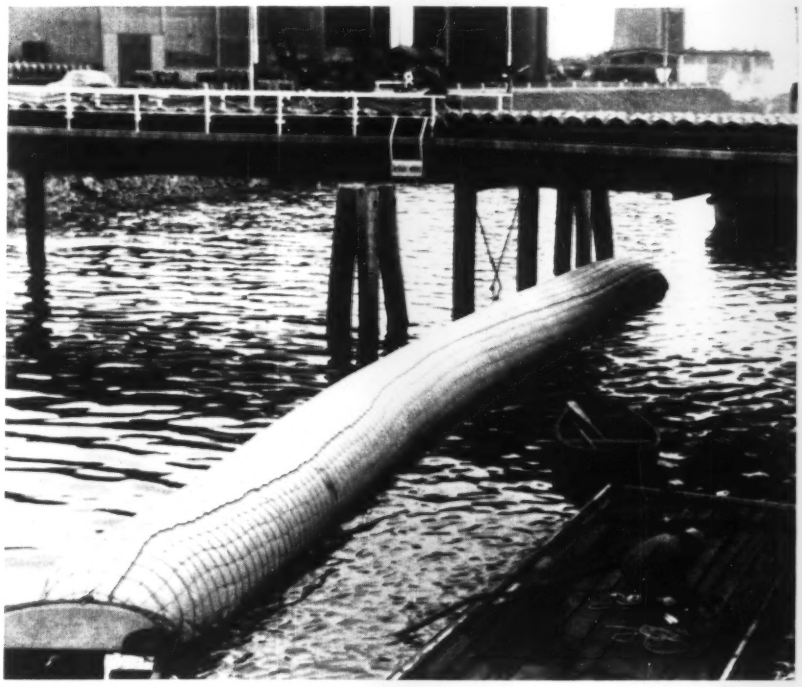
Fully 20 per cent named piggyback as the No. 1 recent development, and 10 per cent are most impressed by the growth of motor common carriers. Both fishyback and improved air freight are considered most significant by 8 per cent. Surprisingly, only about 2 per cent think the plight of the railroads the most important development. Perhaps many shippers think they can be satisfactorily serviced by other carriers.

But traffic men and top management are avidly interested in everything that transportation has to offer. Shippers have to cut costs and speed shipments to customers. To do so, they're looking for an assist from all carriers.

Among the specific things that management wants—in addition to faster service—are service coordinated among carriers, simpler tariffs, and more specialized equipment. The most frequent gripe against carriers concerns delivery service—mainly on the score of inconsistent service and unfulfilled promises.

Traffic executives also frequently complain about the carriers' freight solicitors. Many of the surveyed traffic managers insist that poor salesmanship, too frequent and pointless sales calls, and poorly informed solicitors hamper their day-to-day relations with carriers.

In the "shipper's-eye view" table on page 66, we have listed improvements in carriers under "developments" and "over the horizon." On pages 80 and 85 you'll find action shots of tomorrow's methods as they are being applied today.



Barges made of plastic

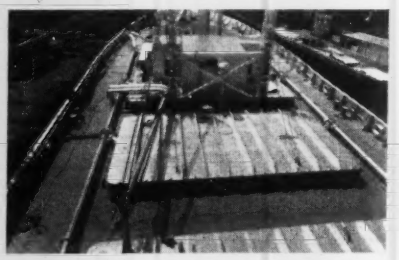
Being tested in West Germany, these floating plastic bags for oil, chemicals, and other products will be used by Reichhold Chemicals. The company estimates that shipping costs can be cut by as much as 80 per cent since several bags—each with a capacity of 20,000 gallons—towed in a line would make up a sea-going pipeline.

Exterior sealed-air compartments provide buoyancy and cushion the contents against collision damage. At destination, the contents can be pumped out, and the collapsed bags, which take up little room, can be shipped back inexpensively. The cost of the bags is so low that they could actually be discarded in many instances. When filled with liquid chemicals that solidify during the journey, the bags can be cut apart like a sausage and peeled off the contents.

Small bags should enable companies that don't ship in volume to take advantage of economical water transportation.

Cheaper Transportation for Free-Flowing Products

In 1956, Ponce Products Company, a leading producer of cement in Puerto Rico, equipped a Liberty ship to load and unload cement efficiently. Described as the only one of its kind, the vessel recently completed twelve months of uninterrupted service on

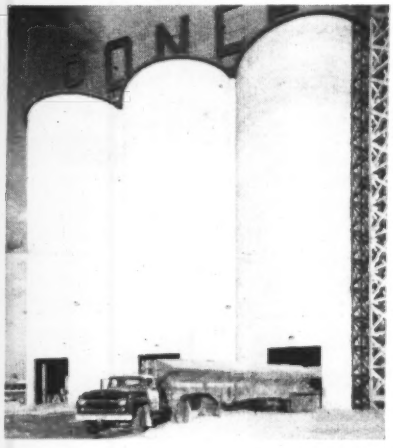


a ten-day turnaround schedule between Puerto Rico and Florida. It discharged an average 9,000 tons a trip during in-port time of 21 hours.

Cement flows in the slightly inclined holds directly to pump hoppers for discharge under forced air pressure. This is accomplished by banks of airslide units in the hold. These units are composed of longitudinal, canvas-enclosed channels. Air pressure underneath the channels aerates and activates the cement to make it free-flowing.

Piping for loading and unloading has flanged ends that connect with portable fill and unloading lines. No stevedoring is required—control is by panelboard pushbutton.

From the new silos at Port Everglades, Fla., Florida Tank Lines trailers with a 125-barrel capacity are filled in less than one minute.



A full truck at a customer's ready-mix cement plant can be unloaded in about 45 minutes. An auger running through the length of the truck forces the cement through discharge tubes to the receiving hopper—a far cry from jockeying 100-pound bags.

"Through the cooperation of the cement companies and our customers, we have been able to develop cheaper transportation," says Frank R. Gernert, Florida Tank Lines executive vice president. "We can go right to the job site and deliver without intermediate transfer. Users of bulk products save handlings, labor of unloading bags and breaking them for use, and the cost of the bags. In addition, we can give faster service."

The Railroads Fight Back

Railroads are using electronic brains and related automation to halt the "frightful delays" in handling for which they have been so severely criticized.

Santa Fe Railway's new pushbutton freight yard in northwest Chicago, which opened in March, marks the completion of a nine-year, $20 million modernization plan for the Corwith yard. Storage capacity has been in-

creased by 28 per cent, and working capacity by 100 per cent.

While the yard was being completely rebuilt, Santa Fe engineers and operating personnel had the problem of maintaining normal yard service.

The new classification yard has 32 tracks and is equipped with electro-pneumatic car retarders and an automatic classification system, which includes automatic switching, electronic speed control, and electronic computers and measurement devices. The system can handle four cars per minute over the "hump" (left). As cars are released from the crest of the hump, their speed is automatically controlled, on the basis of weight of car and lading, car-rolling capability, and track assignment.

In a four-story tower, a retarder operator (center) works at a control console on which there is a complete diagram of the yard's 32 tracks. Lights indicate the operation of the entire system.

Three modern, spacious freight houses are equipped with Towveyers and with a comprehensive communications system, including centralized freight checking and talk-back paging speakers. Each has a fully enclosed warehouse, where all cars are loaded and unloaded under the cover of a roof (below).

Covering the country from a central point

"UNITED RESERVED AIR FREIGHT GIVES WARD'S CUSTOMERS FAST FASHION SERVICE"

—T. C. HOPE
General Traffic Manager
Montgomery Ward, Chicago

"Our distribution center for mail order fashions is in Chicago. Yet we give overnight delivery in key cities coast to coast, thanks to the speed of United Air Freight. But speed alone isn't the whole story. The personal attention we get from United is equally important to us. Their dependability, too. United delivers on time."

For service, information, or free Air Freight booklet, call the nearest United Air Lines Representative or write Cargo Sales Division, United Air Lines, 36 South Wabash Avenue, Chicago 3, Illinois

"THIS CUSTOMER has made her selection in our Oakland, Calif., catalog department. Her order is promptly relayed to us in Chicago. We have regular reserved air freight space with United—so it's just a matter of making the plane."

"JERRY MILLS, United's account executive, sees that the individual shipment is received and loaded with hundreds of others aboard United's fast DC-6A. The dress is in Oakland the next day. Just like having a flying warehouse!"

UNITED AIR FREIGHT RATES ARE LOW

	per 100 pounds*
CHICAGO to PHILADELPHIA	$ 7.70
SALT LAKE CITY to DETROIT	16.20
DENVER to NEW YORK	17.70
SAN FRANCISCO to SOUTH BEND	21.05
AKRON to SEATTLE	22.20

*These are the rates for many commodities. They are often lower for larger shipments. Rates shown are for information only, are subject to change, and do not include the 3% federal tax on domestic shipments.

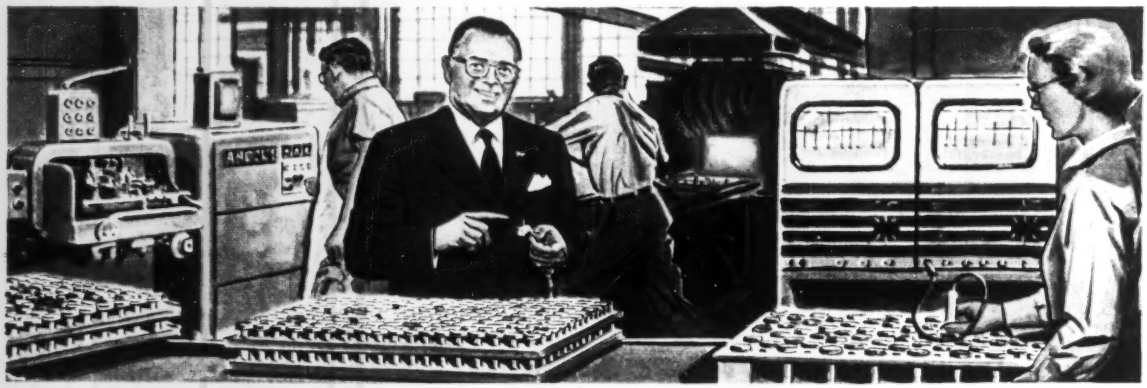
LOW RATES are only part of the story of Air Freight's advantage. Even more saving is reflected in reduced inventory, economical packaging and insurance. United speed and 80-market service offer you distinct competitive advantages.

IT COSTS NO MORE FOR EXTRA DEPENDABILITY—ON UNITED, THE RADAR LINE

Mack President
P. O. Peterson says:

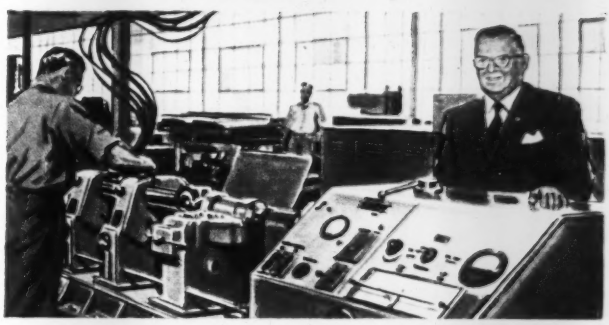
Sure, we build 'em the way we used to... only better!

People often ask us whether modern Mack trucks are really as sturdy and economical as the famous Bulldog models of the past. Sure they are . . . but much more so! Mack still holds to the standards that made "Built like a Mack Truck" part of the language. But this craftsmanship goes hand in hand with traditions of continually improving our product and continually adding the latest and finest of production equipment. For instance —



Our Mack engines have the longest mileage life because of unique methods like this valve-lifter facing operation. First, one of the world's hardest materials—tungsten carbide—is bonded to the lifters at the spot where friction-wear saps the power and efficiency of other truck engines. Then a remarkable electrolytic treatment trues up the tungsten working surface, while diamond wheels polish it to mirror-like perfection. And finally, we use electronics to check results.

Firing Mack gears with Bulldog tenacity. In our immense, ultra-modern ovens we use sizzling hot carbon gases to give our transmission gears a super-hard wearing surface. Service records prove that Mack transmissions run far longer, and need less looking after, than any others . . . thanks to our famous Mack metallurgy, painstaking manufacturing precision, and the most advanced gear design used in any truck.



Vibrationless running helps keep Macks like new. We balance revolving parts like this rugged drive shaft until they spin without a trace of tremor. Our precision equipment improves the operation . . . but nothing replaces the skilled experience of this Mack craftsman. Like so many of his colleagues, he's been a life-long Mack employee.

These instances hint at why you get more work out of a Mack . . . it's because more work goes into a Mack!

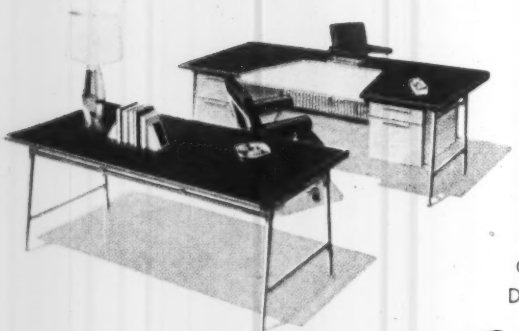
It's part of the language . . . Built like a

Mack

MACK TRUCKS, INC., PLAINFIELD, NEW JERSEY • TRUCKS, BUSES, FIRE APPARATUS AND ELECTRONIC EQUIPMENT

Italic Styling

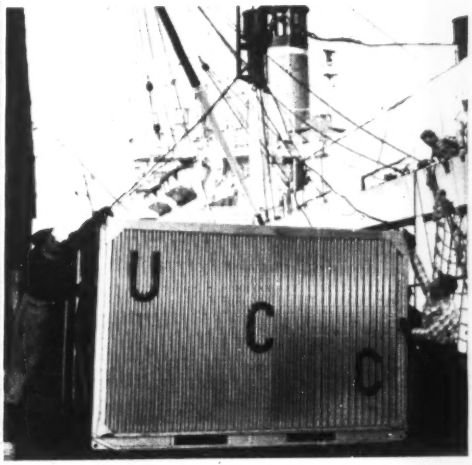
A NEW CONCEPT OF EXECUTIVE ENVIRONMENT



. . . dramatically achieved through the tasteful intermingling of exciting new materials, colors and design. Limitless in variation, Italic Styling can be tailored to the precise character of the business — the personality and taste of the executive.

To acquaint yourself with this magnificent furniture, the focal point of Italic Styling, and our complete interior design services, call your GF dealer or branch, or write for your full-color Italic Styling brochure. GF Studios, Dept. R-12, Youngstown 1, Ohio. Division of The General Fireproofing Company.

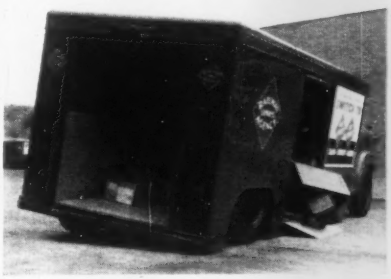
Italic Styling **BY GF STUDIOS**



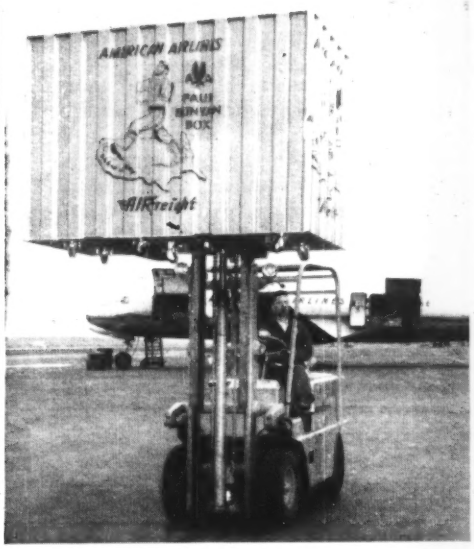
Savings of up to 25 per cent in truck-sea-rail-truck materials handling can result from use of this lightweight aluminum shipping container. Developed by American Car & Foundry Division of ACF Industries, it eliminates the need for repacking and conventional cargo handling. Here, loaded with delicate hi-fi and photographic equipment, it is shown being hoisted aboard a United Cargo Corp. ship bound from New York to South Africa. Once loaded in New York on the truck that carried it to dockside, the contents were untouched until delivered to distributors in South Africa. No packing other than standard factory cartons was necessary. When the ship arrived in South Africa, the container was transferred from ship to railroad flatcars and finally taken by truck from the flatcars to the distributor's recieving platform.

Ready to start on a western run, this new tractor-trailer unit provides extra cubage in the dromedary box on the tractor. A penthouse sleeping compartment is located directly above the cab.

Boxcar partitioning and load-locking for small packages of uniform size and moderate total weight (like glassware, radios, TV sets, and so on) has been developed by Evans Products Company. Called the Quick-Loader, the device has the same purpose as the DF (damage and dunnage free) Loader for heavy products. Introduced in 1946, the DF Loader saved the railroads millions in damage claims and significantly increased carloadings.



This new truck tilts, lifts, and lowers to cut the time and effort of loading and unloading. Raised by hydraulic action, the body can adjust to loading dock heights up to 54 inches. It drops to ground level in twelve seconds for fast roll-on or walk-in sidewalk loading. It is estimated that loading time can be cut 75 per cent. Labor is also reduced.



The "Paul Bunyan box" is a major break-through in air freight containers. Made of strong aluminum, it is 84 by 42 by 62 inches, weatherproof, and mounted on coaster wheels. Its full-length hinged door can be locked and sealed. Advantages are faster handling, greater protection against loss and damage, and elimination of excessive packaging costs.

Shaken like dice, packages bounce around in a revolving drum at the Chicago Research Center of the Association of American Railroads. The tests determine how much rough use various new packaging materials and methods can withstand.

GOODS ON THE MOVE

Companies Hit the Road

Private trucking is rolling in high gear. What are the advantages and shortcomings of this approach to getting goods on the move?

MORE THAN EVER BEFORE, industrial management today is in the transportation business. In recent years private trucking has been increasing faster than have common carriers on the highway. About three of every four of the 460 surveyed manufacturers operate their own trucks. Outright owning is still much more popular than leasing. But leasing has been expanding faster—at the rate of about 10 per cent a year—during the past decade. About 60 per cent of the surveyed companies with trucks own their equipment, 17 per cent lease, and the remainder—23 per cent—both own and lease.

Whether or not a company takes on its own trucks depends more on the industry it is in than on the size of the outfit. In some industries private trucking is more common than in others. Here are the percentages by industry of manufacturers operating their own trucks (owned or leased):

Industry	%
Petroleum	100
Textiles	100
Instruments	91
Food products	80
Stone, clay, and glass products	80
Fabricated metal products	76
Pulp, paper, and products	76
Furniture and fixtures	75
Primary metals	73
Chemicals	70
Electrical machinery	64
Lumber	60
Rubber products	60

Industry operates its own trucks for several reasons—cost savings, better service to customers, and tighter control of shipping. Some industries are forced by the nature of their products—explosives, for instance—to operate their own.

The traffic manager in one company says: "On short hauls our cost is only 10 per cent of the common carrier charges. With the drivers under our control, we can give better service. On long hauls we have seventeen-hour service where common carriers used to take at least three days."

Since the 3 per cent Federal transportation tax doesn't apply to private carriers, companies have this differen-

continued on page 122

Getting Together to Cut Transportation costs

A new approach—the shippers' association—is paying off for some companies. Here's a quick summary of the know-how needed to set one up.

When Congress amended the Interstate Commerce Act in 1942, it opened the way for sizable savings for many shippers. But many companies that could take advantage of cooperative shipping are not doing so simply because they have not heard of it or are unfamiliar with the operating details.

The Amendment creating this opportunity reads: "A group or association of shippers may consolidate or distribute freight for themselves or its members on a non-profit basis for the purpose of securing the benefits of carload, truckload, or other volume rates."

This shipping arrangement is profitable for companies with a steady flow of less-than-carload shipments moving between metropolitan areas at least 900 miles apart, where carload rates offer sizable economies—sometimes half the LCL rates.

The shippers' association operates like a freight forwarder in assembling small shipments, consolidating them into carload or truckload lots, and distributing the individual shipments to the proper destinations. But the similarity ends there because the freight forwarder (1) is an independent firm, (2) is in business for profit, (3) is a common carrier subject to Federal regulation, (4) collects less-than-carload rates and minimum charges from the shipper and pays the railroad carload rates for its transportation service on the long haul, (5) generally covers a wider area.

In 1938 the railroads published an all-commodity rate (carload mixture of different articles) to encourage volume shipping. Liberalization of their tariffs was made to order for retail department stores. Montgomery Ward, Woolworth, Sears, and the like pioneered in taking advantage of cooperative shipping on a large scale.

When freight rates began to skyrocket after World War II, new associations spread quickly and now number well up in the hundreds. The National Conference of Non-Profit Shippers Associations was organized in recent years to coordinate activities of its members and to preserve and protect their rights.

At the outset, an obstacle for many companies was the fear of revealing customer names and sales volume to competitors in the pool. But when

continued on page 124

Information on shippers' associations was provided by Stephen Tinghitella, manager, Transportation Division, Commerce and Industry Association of New York. He is secretary of the Association's Transportation Council and advises 3,500 member firms in the New York area on traffic problems.

When Do-It-Yourself Trucking Pays Off

To meet competition, management is more interested now than ever before in the economies offered by private truck transportation. Every major rise given the common carrier freight rate in the past decade has been reflected in the growth of private carriage. The percentage of intercity ton-miles of motor freight moved by industry-owned or -leased trucks increased from 42 per cent in 1955 to 47 per cent in 1956. Now about half the ton-mileage on highways between cities is accounted for by shippers' privately owned or operated trucking equipment. This growth can be traced directly to the savings scored by many shippers.

These factors determine the size of the savings that can be made with private trucking:

- Level of freight rates paid to for-hire carriers
- Tonnage involved (it should be sufficient to use equipment fully)
- Continuity of movement
- Length of haul
- Availability of backhauls

What, specifically, does it cost industry to operate its own trucks? Table Two below details the truck-operating costs on a per-mile basis based on an investment of $20,000, the approximate current cost of a diesel tractor and a standard 35-foot aluminum dual-axle semi-trailer. Full depreciation would occur after 300,000 miles—a conservative total, since many units are still in operation after 500,000 miles.

From Table One you can determine the specific savings that are possible on various representative hauls and for various class-rated commodities. The table also shows that the importance of a backhaul increases consistently with the freight rate. For instance, on the haul from St. Louis to Pittsburgh annual savings of $15,927 (at the rate of $1.19 a hundredweight) results from returning with a half load. This turns into a loss of $3,113 if the unit comes back empty.

The potential savings set forth in this table are in relation to the common carrier rates on commodities moving at Class 40 and Class 35 rates, at which most class-rated carload or less-than-carload freight moves. There are, of course, lower commodity and exception rates published between the points shown. Also, a considerable amount of freight moves at higher rates.

Of course, similar economies can be achieved by truck leasing.

Table One

WHERE PRIVATE TRUCKING PAYS OFF

Tabulated here are the estimated annual savings per unit (diesel tractor and dual-axle 35-foot standard aluminum semi-trailer) on private truck operation as compared with the lowest common carrier charges for transporting 32,000 pounds of freight for distances ranging from 100 to 604 miles. (Federal transportation tax is not included in savings.)

HAULS AND ONE-WAY MILEAGE	COMMODITIES MOVING AT CLASS 40 RATES				COMMODITIES MOVING AT CLASS 35 RATES			
	Annual round trips	Annual savings per unit — Rate*	No return load**	Half return load***	Rate*	Annual savings per unit — No return load**	Half return load***
New York-Philadelphia 100 miles[1]	250	60	$28,450	$52,450	52	$22,050	$42,850
New York-Baltimore 201 miles[2]	200	80	21,372	46,972	70	14,972	37,372
Chicago-Detroit 267 miles[2]	150	83	14,278	34,198	73	9,478	26,998
Pittsburgh-Cincinnati 300 miles[3]	150	88	9,750	30,870	78	4,950	23,670
Boston-Rochester, N.Y. 407 miles[3]	100	110	5,815	23,415	97	1,655	17,175
Chicago-Kansas City 437 miles[3]	100	119	6,529	25,569	104	1,729	18,369
Atlanta-New Orleans 490 miles[4]	100	118	4,342	23,222	104	—138†	16,502
Chicago-Memphis 508 miles[4]	100	129	6,435	26,975	115	2,154	20,554
Houston-Memphis 554 miles[4]	100	134	5,098	26,538	118	—23†	18,857
St. Louis-Pittsburgh 604 miles[4]	100	136	2,327	24,087	119	—3,113†	15,927

*Truckload rate in cents per cwt in effect April 5, 1958. This is the lowest common carrier rate for transporting 32,000 pounds of such freight.

**Difference between round-trip operating cost and one-way common carrier revenue.

***Difference between round-trip operating cost and common carrier revenue for 100 per cent outbound loading and 50 per cent average return loading.

†Deficit.

[1]Single-driver operation. Driver's wages 2 cents higher and depreciation 3 cents higher per mile than those shown in Table Two.

[2]Two-driver operation. Drivers' wages 3 cents per mile higher than shown in Table Two.

[3]Two-driver operation. Drivers' wages 2 cents per mile higher than shown in Table Two.

[4]Two-driver operation. Total operating costs at 34.1 cents per mile, as shown in Table Two.

Table Two

WHAT IT COSTS TO RUN A TRUCK

	Cents per mile
Wages	
Drivers' wages	11.638
Administrative salaries	1.002
Social Security, compensation, group insurance, etc.	2.190
Fuel and oil	4.211
Tires	0.703
Maintenance and repairs	
Labor	1.945
Material	3.629
Insurance	0.210
Licenses and taxes	0.621
Petty cash *(including tolls)*	1.146
Miscellaneous	0.139
Depreciation	6.666
Total, per mile	34.100

The operating cost per mile shown above covers one-way movement of over 450 miles. Cost of operation for distances of 450 miles or less is higher, as indicated in Table One.

This information on private trucking was supplied by Leo Seff, president of Transportation Cost Analysts, Inc., New York City. The firm conducts general freight traffic surveys as well as transportation studies relating to plant location, warehousing, and distribution.

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GOODS ON THE MOVE

Four Shippers Tell How They Organize Transportation

Whenever traffic executives get together, centralization versus decentralization is sure to be on the docket for discussion. As a conversational gambit at convention or cocktail session, only one other subject edges ahead: top management's blind spot for the real potentials of an efficient traffic department.

Many traffic executives insist that they can be most useful to other departments when all the functional strings are tied together in one tightly centralized department. Others operate strictly on a staff basis and are still able to produce sizable savings and advance company goals, even those that cut across departmental lines.

Here are four case studies of successful but different approaches to moving the goods efficiently. Try these ideas on for size.

Decentralized Distribution Control

The latest link in Pillsbury Mill's new distribution system began operating at Des Plaines, twenty miles out of Chicago, last February. The system has gradually taken shape over the past eighteen months as a nation-wide chain of service centers and grocery product distribution warehouses.

The service centers — Buffalo, Memphis, San Mateo (Calif.), and now Des Plaines—are the regional focal points of the new set-up. They aim to achieve the most rapid and least costly order-processing and product-delivery operation possible.

Prior to 1957, shipments were made directly from plant warehouses, supplemented by 75 warehousing arrangements around the country. Distribution control was centralized at company headquarters in Minneapolis, but accounting, credit, and order-processing functions were handled at 33 branch offices throughout the United States.

Under the new system, distribution is controlled in the four service centers, and the product is physically moved to customers from nineteen key distributing points. Order processing, accounting, credit, and traffic, formerly handled at the branch offices, are now functions of the four service centers.

Over-all distribution control has been decentralized from Minneapolis headquarters to the new service centers. Des Plaines, for instance, processes orders from eight states and absorbs the huge volume of paperwork previously done by hand in twelve sales offices. To meet the demand for high-speed, low-cost paper handling, the centers employ batteries of electronic office machines. Orders are processed and sent by Teletype to plants and warehouses a few hours after they are received at the center.

"The rapidly changing grocery business has become literally a new industry in the past fifteen years," says W. H. Gribble, director of distribution, Grocery Division. "It is characterized today by supermarkets as big as football fields, multi-store chains, more than 5,500 grocery items, less storage space, more selling space, and faster turnover on the shelves.

"Customers want merchandise 'right now' to meet day-to-day varia-

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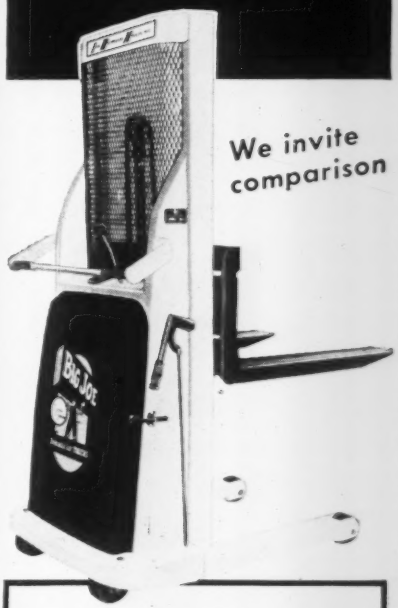

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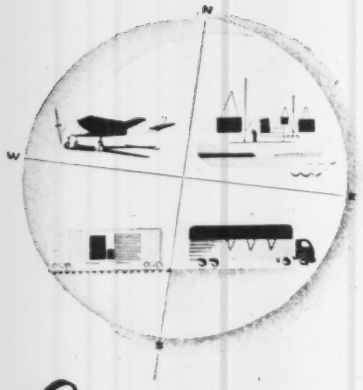

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No, Coverlight is not a "miracle" fabric . . . *but it is the fabric you should consider* for the rough, tough jobs where these specific qualities can make a good cover a *better* cover.

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Another

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RUBBER PRODUCT

REEVES BROTHERS INC.
Vulcan Rubber Products Division
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tions in housewives' food needs, but many markets are located ten or twelve days by rail shipment from Pillsbury plants. Under the new system, the nineteen key distribution points stock all grocery items, so that a customer's order—no matter how varied—can be shipped complete. The first boxcar shipped out of the Chattanooga warehouse, for instance, carried 46 different grocery items."

While the system is still too new for Pillsbury distribution men to peg cost reductions precisely, they estimate that office and paperwork costs under the new set-up are down 10 per cent to 15 per cent. Warehousing and freight costs have also been considerably reduced.

Most important, the company can now move products from lowest-cost manufacturing points to any market in the United States.

"We know our new system can save money over the long pull," says Gribble, "but a lot of it is money that will show up in production and marketing budgets instead of distribution's. More important to us than cost cutting is the fact that we can support our marketing effort with reliable, snag-free distribution."

Grocery-product distribution has undergone the most dramatic change, but all operating divisions have been concentrating on improving distribution efficiency. The Bakery Division, for example, is moving rapidly ahead in the bulk handling and shipping of flour. Though bakery products are still shipped directly from plants, this division is making joint use of Pillsbury's four new service centers for data processing and control purposes. The company's Feed, Grain Merchandising, Overseas, and Refrigerated Foods Divisions also have programs under way for improving distribution.

Planning materials movement

With nearly 80 cents of its sales dollar going for raw materials, all of which must be moved from source to ultimate customer in one form or another, Pillsbury is putting great emphasis on an integrated, over-all view of materials movement. Recently the company formed a Materials Movement Planning Committee to go beyond operational planning and do the down-the-road thinking on materials movement.

The Committee is composed of production, distribution, and marketing executives from each revenue division,

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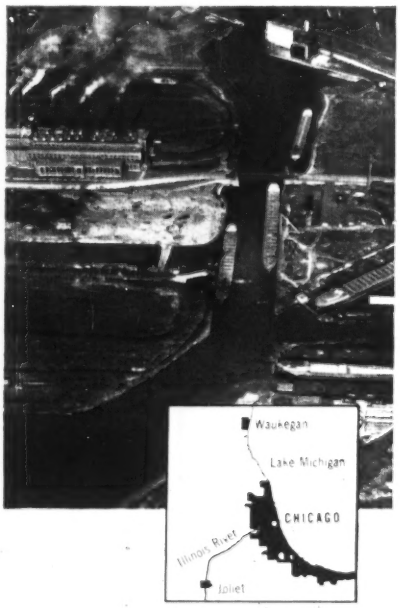

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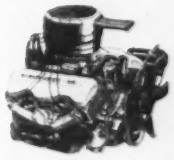

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plus representatives of the transportation, research and development, controller's, and industrial engineering staffs. The Committee's general assignment is to develop long-range plans for materials handling, warehousing, distribution, and material control.

Among the specific projects on the docket are:

- **Automatic warehousing.** How will it affect production, distribution, and research and development?
- **The use of helicopters.** Can they speed up intracity distribution and bring about other economies?
- **The general use of air freight.** Would the savings from the concentration of production facilities and lower inventories more than offset the higher air-freight rates?
- **The use of special equipment and containers for incoming raw materials.**

The group is also developing a material movement plan for as far ahead as 1967, based on probable future trends in marketing, production, distribution, new products, controls, and transportation.

Professional Centralization

"Decentralized for operations, but highly centralized for rate negotiations, selection of carriers, setting of policies, and the professional conduct of the traffic function." That's how Traffic Director Arthur F. Lane describes the traffic function at Chas. Pfizer & Co., Brooklyn, N.Y., drug manufacturer.

There is a close tie between the traffic managers at the Groton, Conn., Brooklyn, Terre Haute, Ind., and Greensboro, N.C., plants and the general traffic department at Brooklyn, even though operationally they report to the plant managers. Routine traffic matters at the branch warehouses are handled by personnel who report directly to the branch manager but are under the guidance of the general traffic department.

A new Eastern distribution center in Clifton, N.J., will be opened later this year. It will also be directed by a branch manager who will report, as do other branch managers, to the branch coordinator in the controller's department. But he will be advised on routine traffic matters by the traffic department in Brooklyn.

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In 1957 Pfizer's sales passed the $200 million mark. Lane, who reports to the vice president for production, handles the central traffic job with a headquarters staff of only seventeen men and five secretaries and stenographers.

"Our plant traffic departments know their local conditions better than we do from day to day. So we give them leeway," says Lane. "But we want to keep our finger on the pulse of all volume traffic. That's why we take responsibility for rates and preferred routings, and why we determine the specific carriers for all movements to branches and customers."

The production control department, which also reports to the production vice president, processes the data for determining what and how much is to be shipped on specific dates, and it issues the necessary orders to the plants. The plant ships these via carriers previously designated by the general traffic department at Brooklyn under standard routing policies.

Reasons for the system

Why such close control?

"For a number of reasons," says Lane. "First, who's most likely to want to know the whereabouts of any particular order? Production control in Brooklyn or the sales department or the destinee. In all cases, traffic wants to be on top of the situation."

This system has enabled traffic to advise inventory control and others immediately of delays or damages so that urgently needed replacements can be dispatched at once.

Second, Lane says, traffic is informed about the specific carrier and knows, for example, whether a strike situation in one of them might disrupt service. Knowledge of a carrier's equipment advantages and limitations is also important.

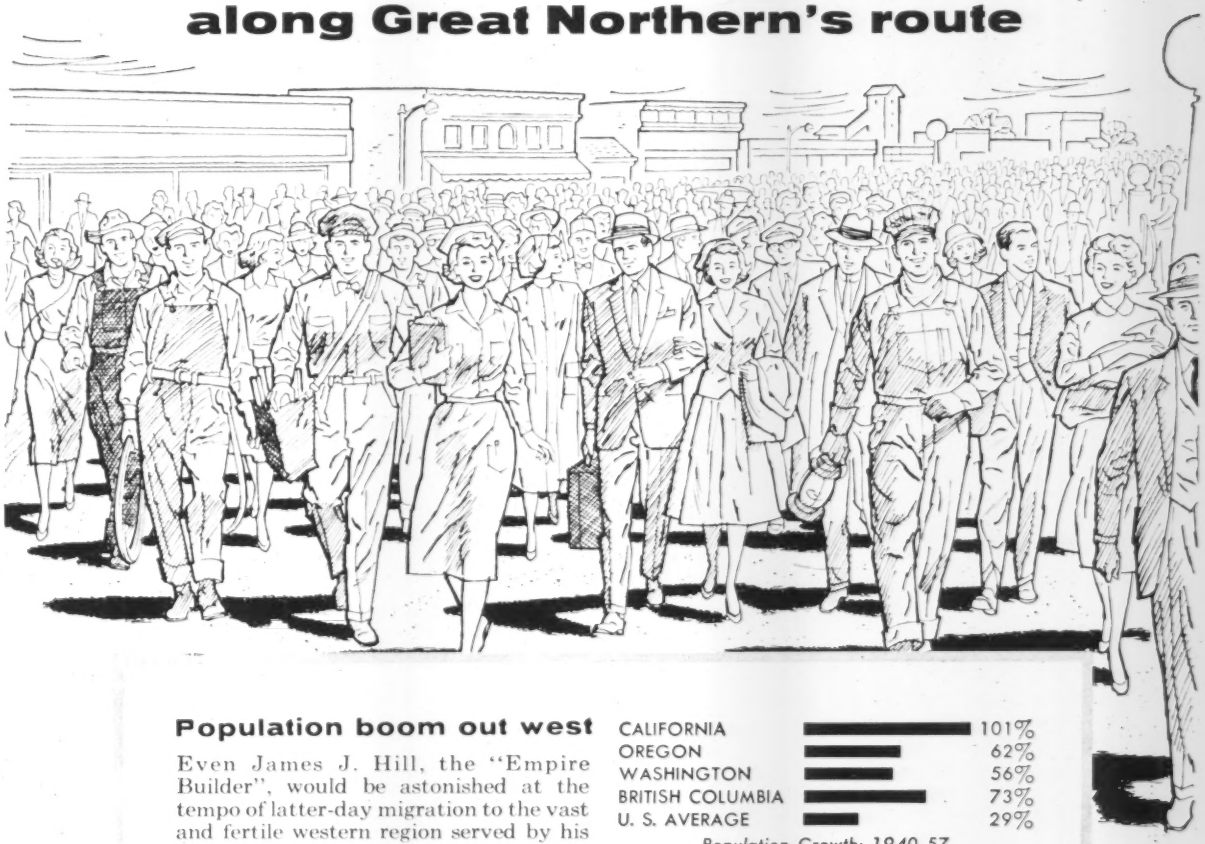
Third, tight inventory requires close scheduling.

Fourth, when the time comes to negotiate for a lower rate, traffic can go to the carriers who have been getting the tonnage.

Of course, a distribution is made between volume carloads and truckloads and LCL and LTL. Clifton, for example, will handle small shipments over pre-set routings and will operate on the basis of routing guides issued by traffic. No prior clearance will be required, but their orders will show the indicated routings.

Traffic management, according to

People are pouring in by the townful along Great Northern's route



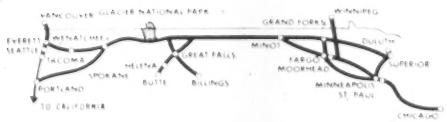
Population boom out west

Even James J. Hill, the "Empire Builder", would be astonished at the tempo of latter-day migration to the vast and fertile western region served by his Great Northern Railway. In the past 17 years, population growth in California, Oregon, Washington and British Columbia has been fantastic. More significant to manufacturers looking for new markets or labor resources, it is largely an adult influx. You needn't wait for this region to develop consumers and workers. They're grown up . . . ready for you now!

Population Growth: 1940-57

Adult population increases in this area are two to three times the U. S. average.

Booming growth in the Pacific Northwest is creating many new business and industrial opportunities. *For information, write E. N. Duncan, Director, Industrial and Agricultural Development Dept., Great Northern Ry., St. Paul 1, Minn.*



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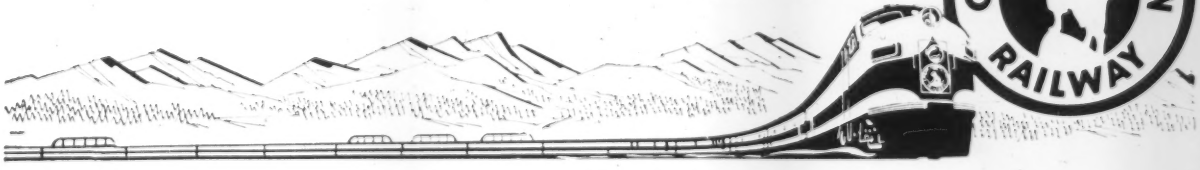

Lane, is a never-ending process of education. He divides this process into three main parts:

- The traffic department itself must keep learning. The flood of daily tariff supplements and other literature must be reviewed. Changing laws and regulations require up-to-date knowledge for proper application.
- Such information must be translated into proper practices and passed on to those who perform the actual shipping duties at plants and branches.
- The traffic manager must keep his superiors and fellow department heads posted on developments and make his recommendations for improving practices that relate to transportation. In doing this, he must point out the ways in which the department concerned will benefit and win the confidence of other executives.

It's a sure sign that he has succeeded when they start bringing their problems to him and his department. This is selling traffic management in a professional way, and it earns respect and cooperation. The traffic manager needs this cooperation for he cannot do the job alone.

Lane and members of his staff periodically visit each plant and branch to keep tabs on local traffic functions and improve coordination with operating departments. With plant traffic men, Lane serves on the materials-handling committee, which meets four times a year. Each plant has a subcommittee for materials handling and makes recommendations to the full committee.

Activities like these stimulate continuing search for better handling and transportation methods. For example, Pfizer was one of the first users of Pan Atlantic's fishy-back service and is currently working with a leading shipping line to test a container for holding bags of citric acid, a product used in the food, drug, and beverage industries.

Reports to the top

Top management at Pfizer is well aware of the importance of traffic management. Lane makes a presentation to the Board of Directors, outlining his department's objectives and accomplishments. This is an unusual practice in industry and has probably helped increase top management's appreciation of traffic at Pfizer. In addition, Lane submits regular written reports.

Lane believes in spelling out dollar savings and services performed for top management. "I render a periodic report to the production vice president," he says, "and I also develop an annual report for him.

"In 1957, we could report tangible savings of $405,000, not counting such items as recoveries on loss and damage or refunds on travel by personnel. The bulk of this saving came from rate negotiations, improved routings, and recommended changes in distribution areas and methods."

Among the measures taken to achieve these substantial savings were:

- Using proper nomenclature for classifications and tariffs.
- Establishing lower commodity rates where justified on basis of heavier loadings, competition, or other factors.
- Speeding up loading and unloading of carrier's equipment—by use of palletizing, for example.
- Arranging privileges for storage and stop-off in transit.

Eying the forest, not the trees

When choosing particular routings, an over-all view is taken. For instance, the incidental costs of loading a car at plant and unloading at branch may

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offset the differential between the rail and truck carload rate. "We are not interested in showing an over-the-road saving at the expense of plant or branch budgets," says Lane.

Air Express and air freight are often best for getting drugs where they're needed in a hurry or distributing samples of new products to salesmen and doctors. But traffic is frequently able to supply truck service that can deliver the goods in ample time at much lower cost.

Controls in the general traffic department permit making carloads or truckloads of several LCL or LTL shipments, greatly reducing freight costs and often giving better service.

Pfizer has established maps for each of its four sales divisions, showing the areas served by each warehouse. Changes in laid-down costs often dictate shifts which result in savings of thousands of dollars.

Discussions with the sales, production, and legal departments determined the risk limits the company could take in negotiating carrier rates based on stipulated values lower than the actual limits on the goods carried. Sizable savings—as much as $50,000 in a year—were possible here.

Also, a high degree of cooperation exists between traffic, on the one hand, and inventory control, purchasing, and sales on the other in replenishing, buying, and selling in quantity to take advantage of legal tariff minimum weights. This has eliminated paying for "air."

Each man in the department is urged to look beyond his immediate task. For instance, when an employee is auditing a bill, he's told, "Now, don't just verify the rate. Analyze this whole thing. See if it could have been done a better way."

In this way, says Lane, "we are developing future traffic managers."

Highly Centralized—Tightly Controlled

Complete centralization of traffic policy and control, even including functional responsibility for materials handling at all plants and warehouses, distinguishes the traffic organization at the National Biscuit Company (net sales in 1957, $425 million).

Transportation and related problems of physical distribution are handled from New York by a total staff of 34, including clerical and stenographic personnel. Under Vice President John A. Hart, the department has tight control over goods in movement and in storage for the company's 40 bakeries, mills, and plants located in all parts of the country and for its 240 warehouses in all states but Nevada and Wyoming.

By far the greatest portion of the company's products are delivered to retail outlets from the distribution points by the company's fleet of more than 2,000 trucks.

"We have no divisional traffic managers," says Hart. "On Thursday each of our managers at the various shipping locations receives a summary report of all shipments scheduled for the week to come. On Friday he must put on paper his opinion of the best shipping days and also his choice of carrier within the policy lines laid down by the traffic department in New York.

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"We centralize all control of routing in our New York office, and while changes may occasionally be made for good reason, our field organization knows that no change in carriers is possible unless a complete summary of the facts is forwarded to New York."

Passing on the information

Hart says that under Nabisco's set-up no highly elaborate system of reporting to top management is required. "There is a top executive staff meeting once a week," he says, "at which the president of the company presides, and which I attend. If there is anything new in transportation, I bring the others up to date. Every month every department head receives from the controller's division a simple report showing the average freight rate for the past month, the previous month, and the same month last year. Where special situations arise, such as an *ex parte* increase (an unnegotiated rate increase by the carrier), I usually write a letter to heads of interested departments. If anyone has specific questions, he knows that there are several men in our department who can answer them."

With the assistant general traffic manager charged with the details of daily operation, his immediate chief, the general traffic manager who reports to Hart, is freed for long-range planning and topside coordination with company-wide operation.

"My job is now so little concerned with actual traffic and rates," says General Traffic Manager E. F. Mundy, "that I seldom talk 'how much' any more."

A year ago the job of staff assistant to the assistant general traffic manager was created for continuing analysis into possible improvements. Among other things, this staff assistant is currently cooperating with the controller's office in a study to determine how electronic data processing can be employed to uncover possible hidden movements—unnecessary shifts of goods between plants—for correction. This is an operations-research type of approach to improve the movement of merchandise from

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Planning or pacing production—Teletype can help. For specific information about the new Teletype Model 28 Printer or other Teletype equipment please write to Teletype Corporation, Dept. 11F, 4100 Fullerton Avenue, Chicago 39, Illinois.

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the plant to the distribution center.

While Nabisco considers it normal to have a materials handling division in traffic, it is rather unusual (chart, page 65). The primary function of the division is to reduce costs by improving present methods and developing new methods of handling materials, supplies, and unfinished products at some 300 of the company's processing, manufacturing, and selling branches. Six specialists report to Materials Handling Manager H. R. Black. Since they are versed in carrier operations, they recognize advantages and limitations in particular types of handling equipment.

"Problems may come to us from several sources," says Black. "Some one from the field may ask our advice. Or one of us may spot something worth looking into. Or perhaps the company may be planning a new bakery, and we may be asked to cooperate with the people who plan new construction."

Consultative Traffic Management

"Ours is a selling job," says Traffic Manager Carl M. Swanson, in describing how the traffic department is organized at American Brake Shoe Company. "We continually try to convince other divisions that they will benefit by coming to us with their problems."

While American Brake Shoe shipments were a respectable $187 million in 1957, Swanson points out that activities are dispersed among 55 plants—many of them relatively small—in 18 states. In line with Chairman William B. Given's famous philosophy of "bottom-up management," the ten divisions of the company are almost complete autonomous.

The individual plant managers are top dogs in their own bailiwicks, and shipping and receiving functions are under their direct control, with only advisory service from traffic. "Our seven-man department in New York performs the professional services of rate analysis and rate negotiation, auditing of freight bills, and issuance of routing guides to the plants," says Swanson, "and by circulating a regular staff-written newsletter, we keep local shipping and receiving men, pur-

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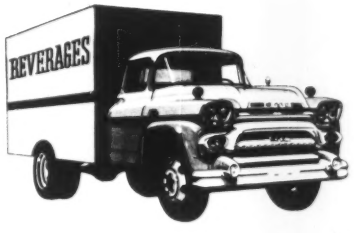

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Aids for local management

"We have compiled rate and routing guides for the local shipping and receiving departments, and the plants get the benefit of the rates we have checked out. Our guide will tell the local people the rate from, say, Los Angeles to Aurora for applicable items as well as rates to the same point from competitors' plants. We ask our people at L.A. to let us know when they get a new destination, so that we can get complete information to them. I also circulate among the plants to help with local training in traffic matters.

"When a new man comes into the picture locally, we do our best to make him traffic-conscious and aware of the benefits to be derived from our 'consulting' service. Direct contacts are encouraged—salesmen will write in for information on twenty or thirty destinations and competitor's distribution points. We earmark such inquiries so that we can bring the information up to date when new rates or routes apply. Over the past few years we have been getting the benefit of 'word-of-mouth advertising' by our local people, from shipping clerks to a president of a division, on savings possible by working through us.

"We audit *all* freight bills. If a pattern indicates that a plant could choose a better means of transportation or follow a better routing, we so advise. However, there is no procedure of prior clearance by the local plant, and our suggestions must stand on their merit. We have no formalized authority to enforce our ideas."

The traffic department gets up an annual report for top management. In it, each division is discussed separately, along with what the traffic department has been able to do for it. The report is kept terse and to the point, and "where possible a dollar sign is put on results."

For the size of his company, and the size of American Brake Shoe's transportation bill, which runs into the millions, Swanson's organization

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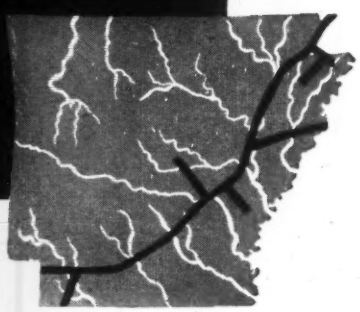

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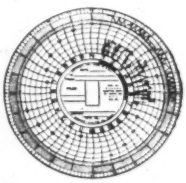
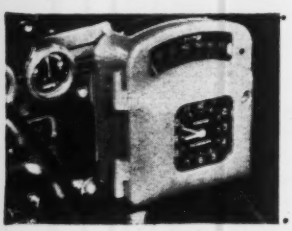


CHART TELLS ALL



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HOW RATES ARE MADE

Contrary to the common opinion in industry, the Interstate Commerce Commission does not make rates for common carriers. Another misconception is that all rates are standard. For instance, before the ICC prescribed a minimum rate level last year in the New York-Philadelphia area, there were 23 different legal motor rate structures covering the same commodities and points.

The Interstate Commerce Act preserves the carriers' right to initiate rates, rules, and charges with the ICC. Carriers generally publish rates through rate conferences, but they retain the right to take independent action on certain rates and provisions within the tariffs. Many carriers publish their own independent tariffs and do not subscribe to the conference rates.

Rates may not become effective with less than 30 days' notice except with the Commission's permission. The Commission may, at any time, suspend such rates before they become effective for a period not exceeding seven months pending an investigation into their lawfulness. Generally speaking, the ICC suspends tariffs only upon the protest of shippers or competing carriers, but it can suspend on its own motion. The reason for this is that there is a large volume of new tariffs filed continuously. If, after an investigation, the Commission finds the rates to be unlawful, it orders cancellation of the tariffs. The rates will become effective if not suspended, but the Commission may at any time thereafter, upon complaint or upon its own motion, look into the lawfulness of rates. After formal proceedings, the Commission may find that the rates are lawful or unlawful, or it may prescribe a rate, or it may prescribe maximum or minimum rates.

---

is small and simple. He reports to the general purchasing agent. An assistant traffic manager reports to Swanson, and the rate analyst and freight auditors report to his assistant.

Policy on how to allocate tonnage of certain items among carriers is set by a Traffic Committee composed of the heads of railroad sales and the traffic manager. Actually, the American Brake Shoe set-up is a good example of a transitional stage, showing how a company can move into more highly organized and functionalized traffic management as needs develop.

Swanson's next step, as he sees it, will be to add one or two professional traffic men with regional responsibilities. Local traffic managers in those spots where operations justify them would logically follow.

"In the latter case, will the set-up continue highly decentralized, following the 'bottom-up' doctrine?" we asked.

"Very likely," Swanson replied. "But we'll let the logic of events decide." END

many new developments in the different modes of transportation. Management's stake in what has been happening and an indication of what's to come are given in "A Shippers-Eye View of America's Transportation System."

Here are some pointers on how to cut distribution costs, gleaned from DR&MI's discussions with executives from a wide range of companies:

1. Reassess markets. A fundamental reassessment based on far-reaching influences is needed. For example, experts predict that within the next 50 years we shall see extensive urbanization in the form of "strip cities." The booming birth rate may mean practically solid settlements from Boston to as far South as Newport News, Va. Similar vast urban regions will grow up in the Southwest and West. Already large sections along the Great Lakes and the Atlantic Coast are becoming urban entities. These developments will certainly call for new thinking about selling, warehousing, and transportation channels. Thousands of small- and moderate-size plants, warehouses, and business organizations have already moved to suburban areas. To service these new settlements, large suburban shopping centers have sprung up. Whether you are selling to industry or to retailers, these developments mean important territorial realignments and the need for new ways to serve them quickly.

The choice of transportation can be significant to the introduction of a new product. Output of frozen fruit juices, for example, was relatively limited at the start. To speed public introduction, promoters decided to use small-capacity truck units and distribute widely, rather than ship in carload lots to a few heavily populated centers.

With the advent in 1959 of the jet age in commercial transport, the tempo of business will speed up rapidly for many firms. How much will jet speeds affect business? No one knows —but undoubtedly some concerns will take advantage of this breakthrough, forcing both direct and marginal competitors to consider it too. According to Senior Vice President Hugh J. Davern of the Grand Union Company, one of the top ten food chains, jet planes will halve the travel time of fresh produce from farm to super-

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Savings of $5,000, $10,000, $15,000 a year are now being made by regular Sten·C·Labl users

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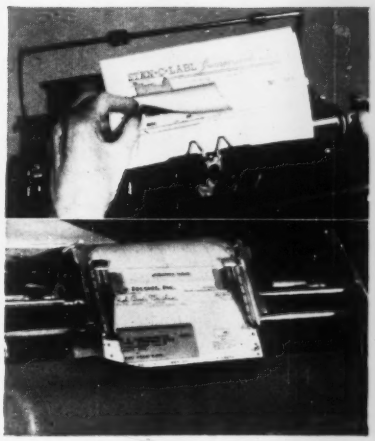

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You can prepare Sten-C-Labls at the same time as your invoice, order, bill of lading or shipping papers—whatever your procedure or equipment—manual or electric typewriters, electric billing or accounting machines, slave machines or various IDP systems.

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Your shipping department makes unlimited impressions with Sten-C-Labl Applicator direct to PANL-LABL printed on carton at no extra cost. Eliminates expensive, time-consuming gummed labels. All addressing errors, mis-shipments and repetitive writing are avoided.

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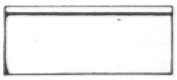

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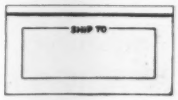

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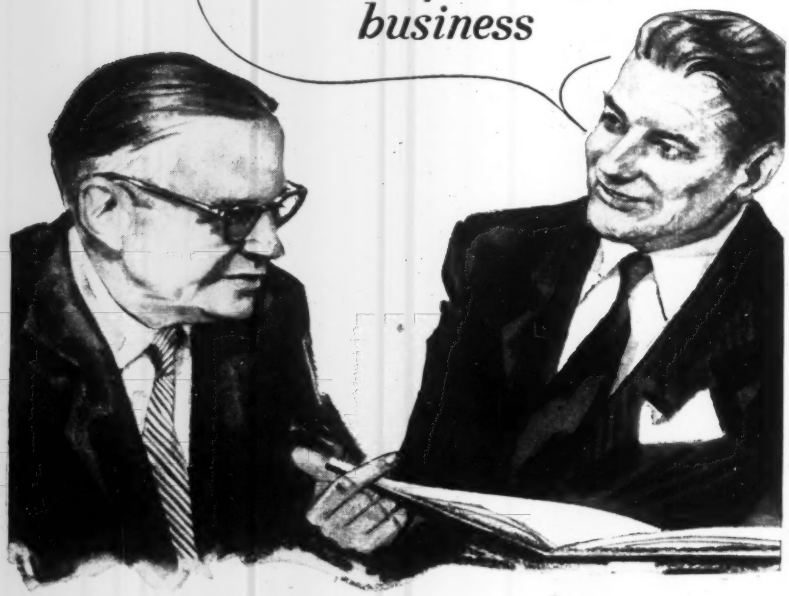

We realize that any concern seriously considering building, or otherwise acquiring an additional plant in a new area, has in mind certain definite requirements.

We have up-to-date factual information on available sites in the western states which we serve. In short, we're in position to help you decide on a new location if you will advise us as to your requirements.

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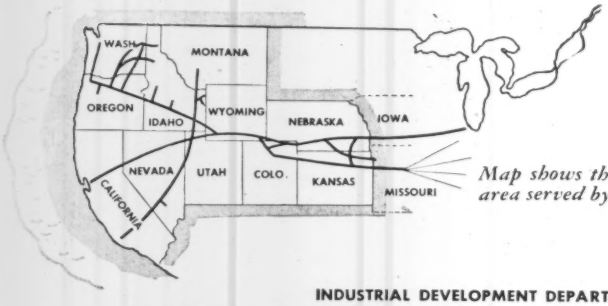


Map shows the vast western area served by Union Pacific

INDUSTRIAL DEVELOPMENT DEPARTMENT

UNION PACIFIC RAILROAD

OMAHA 2, NEBRASKA

market. This may revolutionize the marketing of these products, for farmers will probably make fresh vegetables and fruits "table-ready" or ready-to-cook before shipment, to compete with frozen foods.

2. Analyze total distribution costs. In its 1939 study of distribution costs, the Twentieth Century Fund reported that "manufacturers often have no accurate knowledge of how much it costs to distribute their goods." Seventeen years later, despite the growing importance of the subject, the Harvard School of Business reported on *The Role of Air Freight in Physical Distribution* and found the same lack, stating that ". . . available data on manufacturers' costs of procurement and distribution are sadly deficient. . . . Warehouse policy generally seems to be a function of the sales department. . . . We found little evidence that a careful analysis is made of ensuing costs as against hoped-for benefits."

More than the carrier's bill

DR&MI's interviews and discussions showed a lively awareness on the part of traffic and distribution directors—if not on the part of top management—of the need to figure real distribution costs over and above actual charges paid to carriers.

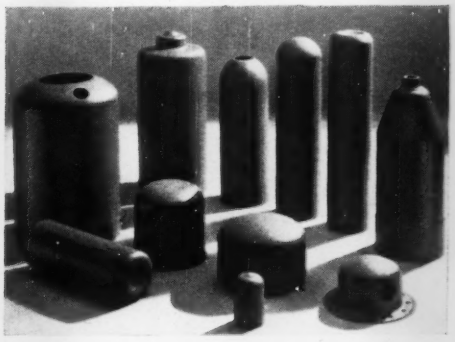
Traditional accounting records don't reflect such costs. But special digging in a "distribution audit" will turn up the data on which to base decisions for major changes. Figures on packaging, intraplant handling, loading and unloading, loss and damage, inventory investment, and cost of operating warehousing facilities should be included.

American Optical, Johnson & Johnson, and General Electric make detailed cost breakdowns of this sort. (For a comprehensive distribution audit checklist, see DR&MI, January 1958, page 80.) American Airlines, understandably interested in justifying premium transportation, maintains a staff of specialists to help prospects determine market potentials, inventory controls, breakdown points, and related problems.

Wallace Clark & Company, management engineers, cite a study showing how a manufacturer with branch warehouses 1,000 miles from the plant, stocking about 500 items, reduced average inventory 57 per cent and storage space 69 per cent by shipping in less than truckload lots daily,

Most modern industries shape up with industry's most modern shapes

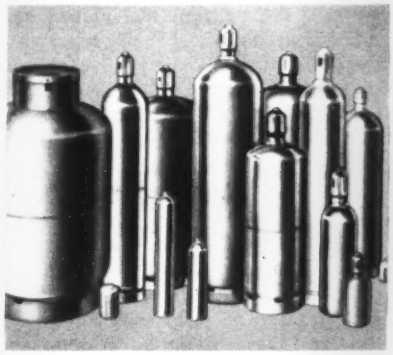
Towers for refineries and chemical plants such as this 42-ton, 133-foot stripper. Precision-welded towers and vessels are custom-made by the experienced engineers at the Downingtown Iron Works, Inc. Division, in Downingtown, Pennsylvania.



Deep drawn shapes for lighter, stronger products that reduce production time, lower unit costs for manufacturers of air conditioning, refrigeration, pneumatic, hydraulic and pressurized equipment.

Tank trucks for faster LP-gas distribution. Designed with twin tanks for bigger pay loads, better stability, the Hackney tank truck features practical styling, advanced piping and pumping engineering.

Stainless steel acid carboys that carry and stack easily. Hackney builds a complete line of crack-free drums and barrels widely used to cut shipping costs in the chemical, paint, food and other processing fields.



Compressed gas cylinders that help lower shipping costs of both high- and low-pressure gases. Built strong without excess weight, these smooth cylinders are available in many sizes to meet user requirements.

LP-gas systems for industry, home and the farm . . . featuring better design for easier filling. Hackney produces most types of LP-gas containers.

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rather than in full truckloads every three weeks. By providing customers with quick service, the company was able to reduce the stocks kept on hand. And the savings on inventory carrying costs (which generally run about 25 per cent) greatly exceeded the extra cost of premium transportation.

Averages can be misleading. In a company where freight costs were 2.5 per cent of sales, analysis showed that costs, beyond a radius of 200 miles from the plant, ranged from 4 to 7 per cent, and that a great deal of merchandise was shipped beyond that radius.

Companies such as Union Carbide, Pittsburgh Plate Glass, H. J. Heinz, and Koppers Company are employing operations research techniques to determine the most profitable warehouse locations and allocate shipments among several manufacturing centers. Basically, these techniques involve a systematic trial-and-error calculation to arrive at the best combination. For example the effect of adding one warehouse or transferring stock from one warehouse to another may be analyzed. Computations are greatly speeded by modern data processing. If outside specialists are employed to establish the method, the company's own personnel can readily be trained to do the routine application.

Public warehousing

In analyzing distribution, don't overlook the possibilities offered by public warehouses. Their use will often avoid the so-called "investment in brick and mortar" decried by advocates of premium transportation. You pay only for the space and labor used. An additional advantage is the accuracy with which these distribution costs can be predicted and budgeted.

Use of public warehouses is especially worth considering by smaller companies. A case in point: A small manufacturer of jams and jellies in Cleveland used a public warehouse for cases on hand each month, ranging from 20,000 to 81,000. His saving in costs as against leasing and operating his own warehouse amounted to $8,700 for the year.

The trend to smaller inventory tie-ups is leading to smaller and smaller shipments. Appliance manufacturers who formerly warehoused hundreds of thousands of products are now operating on a ten-day inventory.

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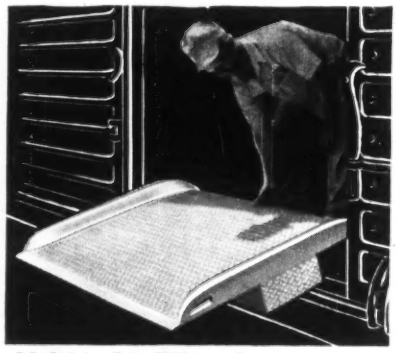

MAN PUTTING DOWN A SOUND INVESTMENT

This company has made a wise investment—one which will pay dividends year after year. The man above is dropping a Magliner magnesium dock board in place on the company's dock. This new Magliner will speed loading . . . get more out of power trucks and other loading equipment . . . keep costs down! Made of light, strong magnesium, it will protect men, loads and equipment against accidents and costly damage. Magliners are low in initial cost—and because they provide dependable, long-life service with less maintenance they give you greater economy ALL ways! Find out today how Magliner dock boards can cut costs in your operation. **Write for Bulletin DB-204.**

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FOR WAREHOUSING Operates from aisle. Forks reach into rack. Works in 6½ ft. aisle.

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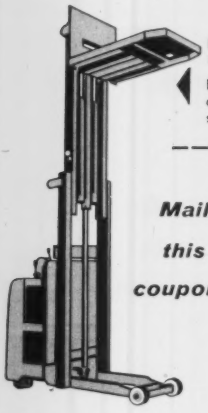
in New **4,000 lb.** capacity

FOR WAREHOUSING Straddles bottom pallet load. Operates in 6 ft. aisle.



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It is often possible to have a "conveyer belt" in transit. For example, one bottling plant has its supplier dispatch trucks every fifteen minutes, beginning as early as 4:00 AM. Schedules call for bottles to move from the tailgate to the production line where they are filled and then move to waiting trucks for dispatch to various terminals.

Many assembly lines are now operating only 24 hours ahead of the scheduled arrival of trucks from distant points, carrying parts, units, and accessories needed for line production. This means fewer storage facilities are required. What was formerly stored is now riding toward the production line on precisely timed tractor-trailers.

3. Eliminate preventable handling costs. Handling offers big opportunities to eliminate costs before they occur. An outstanding example is the meat-packing industry, which shows a net profit on sales of only about 1 per cent. The industry estimates that it costs approximately 50 cents a hundred pounds to move meat from an intercity trailer to the delivery truck. Similar costs occur when the product is transferred from rail car or trailer to the warehouse and from the warehouse to the delivery truck that takes it to its destination.

Since some 32 billion pounds of meat are consumed in America each year, a saving of some $160 million can be achieved by eliminating just one handling. That's a big spur to the industry's interest in newer methods of containerized shipping.

"The traffic manager or director of distribution should make a periodic analysis of his shipping facilities," says Traffic Manager Edward F. Mundy of the National Biscuit Company. "For example, has he explored palletized operations, bulk loading or unloading, different methods of packing, use of ramps or dockboards to facilitate loading and unloading? You may think that two truck docks will permit loading of only three outbound trailers a day. Maybe with proper materials handling you could increase potential to six or even eight in the same loading period."

Many plants are going into palletized or unitized loads, or they're finding that their customers specify them. Such handling permits mechanizing receiving and shipping facilities with overhead cranes, lift truck equipment, and conveyer systems to cut down on

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"...that's why I'd put my money on FORD for fleet use!

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* * *

Danny Eames is an independent test-driver and one of America's most experienced automotive authorities. The Ford he drove over many of the world's roughest roads was a conventional 1958 model. The purpose of the test was to prove that no car in its price class matches Ford for built-in quality, durability and performance. And Ford proved it—to a degree unmatched by any stock automobile . . . before or since!

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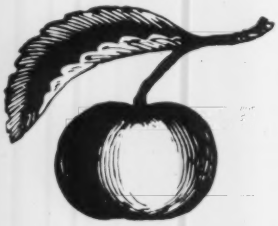

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Santa Fe

labor (DR&MI, April 1958, page 122). Trucking firms are keeping abreast by installing similar equipment in their terminals.

4. Take a new look at product design and packaging. Close cooperation with carriers pays off, although few companies need to go as far as one stove manufacturer who decided to lick the costs of transit and warehouse damage once and for all. In effect, this company threw away all blueprints on how to build a gas range. Instead, it built a frame for a stove that could be transported, warehoused, and installed without damage. Then the design engineers built in the necessary stove features.

The small, standardized product unit is becoming increasingly popular. The lumber industry is currently experimenting with bundles of finished lumber to be shipped in wide-door boxcars, forklift loaded and unloaded. This illustrates the trend toward moving products from original shipper to ultimate consumer or retailer without breaking bulk.

Plastics lend a hand

Another promising development is plastic-film liners for various shipping containers that handle liquids, powders, and slurries. They should promote re-use of shipping containers by making expensive cleaning unnecessary, permit more loaded movement both ways, and make possible inexpensive knockdown containers.

The Research and Development Laboratory of the Association of American Railroads cooperates with manufacturers to improve packaging. Problems caused by the increasing curvature of windshield glass are an example cited by W.M. Keller, AAR vice president for research. New containers have been developed to hold the windshields securely despite a variety of impacts. Several furniture manufacturers are participating in a program for testing new packages to prevent shipping problems before they occur.

The AAR researchers trace apparent faults in packaging clear back to the manufacturing processes. One instance was the failure of multi-wall paper bags used to hold a refined clay powder. It was found that at the end of the day the flow run in the plant produced a material that attacked the bag fibers and destroyed them when it was included in the pack. And before quantity production was begun on

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We will build a modern plant to your specs. You build your equity as you pay rent, and a provision in your lease will let you buy your plant any time for the unpaid balance. Write today for details of "The Scranton Plan."

INDUSTRIAL DEPARTMENT

SCRANTON CHAMBER OF COMMERCE

SCRANTON, PA.

"SCRANTON...The Key City in the Keystone State"

Follow these Leaders*...

Explore the benefits of

PUBLIC WAREHOUSING

Discover how you can eliminate your space problems and save money, too, through the flexibility of Public Warehousing and its adaptability to your varied requirements.

***Pillsbury Mills, Inc.**

are expanding their use of Public Warehouses because "The development of a high degree of specialization in the distribution of foods, plus the expansion of our product line make it necessary for us to decentralize our distributing system. We have found Public Warehouses alert to these changes in the food industry. They have the know-how and facilities to serve us economically, and we are looking ahead to further expansion in this field."

***Lever Brothers**

uses Public Warehousing and says, "Because of the fluctuating nature of our business, such transit operations can be more economically performed by Public Warehousemen, as we would find it necessary to maintain a much larger operating staff to meet our peak volume."

For the story of modern methods of distribution . . . or for an analysis of how Public Warehousing can help you . . . write

AMERICAN WAREHOUSEMEN'S ASSOCIATION
Merchandise Division
222 West Adams Street • Chicago 6, Illinois

new designs for products like refrigerators, stoves, washing machines, and so on, the National Porcelain Enamel Institute worked with manufacturers to determine how the new products would ship.

Of course, companies are doing much on their own. One materials-handling engineering group (which, incidentally, reports to traffic) made a year's study of wax paper. At first it was received from vendors in corrugated containers or simply wrapped in paper, in rolls of several hundred pounds. These packages suffered frequent damage when dropped or put on skids. Several hundred feet of paper could be damaged by a hard blow. New specifications, which all vendors were finally persuaded to adopt, were developed. They called for unitized loading on expendable wooden pallets, with as many as 80 rolls to a 1,400-pound unit.

Reports indicate that by concentrating on package engineering, companies can cut packaging costs by as much as 70 per cent; carrier handling by 60 per cent; and loss and damage claims from pilferage, rough handling, and exposure by another 60 per cent.

5. Keep after run-of-mill traffic economies. Detailed information on good traffic practice, together with examples of dollar savings achieved by it, is given in the results of the DR&MI questionnaire survey on page 68. Cost saving moves include pre-auditing freight bills, consolidating shipments into carload or truckload sizes for rate advantage, stop-over privileges with in-transit warehousing, and the like. Claims as the result of delays can often be avoided by examining a carrier's equipment and its record of past performance.

Know what you ship

Freight classification is also important. Care in the choice of words used to describe a product may put it in a lower-rate classification. A manufacturer in New York City, for example, who shipped buttons on cards and buttons not on cards listed all outgoing shipments on the bill of lading as "buttons." But buttons on cards are subject to the class 100 rate, those not on cards to the lower class 77.5 rate. In the absence of a detailed description, the carrier automatically applied the higher rate to both types of shipments. Proper classification resulted in a saving of about 22 per cent.

Aeroquip CARGO CONTROL

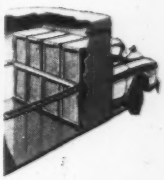
Cuts Cargo Damage On Everything

from Bakery Trucks

Ralphs Grocery Co. needed *extra* heavy-duty equipment to secure stacks of loaded bread trays in transit. General Logistics recommended its aluminum aircraft track and aircraft cargo ring fittings with strength up to 5000 lbs.

To Satellite Tracking Camera

To move the earth satellite tracking camera 816 miles, Bekins Van Lines Company secured all parts with heavy-duty (up to 3500 lbs.) Tension-Locking WEBLOCK Strap Assemblies that tighten with a pull . . . release with fingertip pressure.



General Logistics Truck Cargo Control System is simple, versatile. Steel or aluminum notched track is installed inside truck or trailer. TRACKLOCK end fittings attach WEBLOCK Strap Assemblies . . . spring-loaded end fittings attach steel shoring bars . . . quickly, easily.

WEBLOCK and TRACKLOCK are Aeroquip Trademarks

General LOGISTICS
A DIVISION OF Aeroquip CORPORATION

P. O. Box 1071-M, Pasadena, Calif. DR-6

Please send information on Aeroquip Cargo Control System.

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TITLE_____

COMPANY_____

ADDRESS_____

CITY_____ STATE_____

No problem at all, the way I saw it.
We had to ship quick...
ship at lowest cost...
ship safe and sure.

The answer seemed obvious:
Call Eastern Express, Inc., the modern motor carrier with a record of shipping go-how*.

Good thing we did. Eastern Express, Inc. met
our tight delivery deadline right on the button.
And our shipment arrived in perfect condition.

*go-how... it gives you complete assurance of on-time delivery and safe arrival. *Go-how* based on a modern communications system that provides positive control of each shipment from origin to destination. Actually lowers your shipping costs! Whether your product is plastic, metal or perishable—LTL or TL—Eastern Express, Inc. has the *go-how* to serve you best!

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General Offices: 128 Cherry Street, Terre Haute, Indiana

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Bridgeport • Chicago • Cincinnati • Cleveland • Columbus • Dayton
Evansville • Fort Wayne • Harrisburg • Indianapolis • Jersey City
Metuchen • Philadelphia • Pittsburgh • St. Louis • Trenton • Zanesville

By saving one day on the average shipment and consequent collection of invoices, one large company will reduce the amount of working capital tied up in inventory by over $1 million a year. In another company, the traffic manager achieved considerable savings by cutting down on the number of expensive emergency shipments from suppliers to prevent shortages and consequent production downtime. Since he had no direct authority over routing inbound shipments, he accomplished this by strengthening his contacts with the purchasing department. "Every day, the traffic man must do an almost heartbreaking job of educating other departments to use his services," he says. Just as many men try to be their own lawyers, so many sales managers, purchasing agents, branch managers, and other department heads try to be their own traffic managers.

In one drug company, the sales department had been sending samples to doctors, hospitals, and company detail men (salesmen) across the nation. They were sent without any controlled pattern of shipping. Packages of 60 and 70 pounds moved by parcel post.

When two analysts from the traffic department went to work on the problem, they came up with a system for consolidating the shipments in truckloads to key cities where bulk is now broken up and redistributed. The new system not only delivers the samples in better condition and less time but results in a net saving of several thousand dollars a year.

6. Keep up with what carriers can offer. Managements must be alert to new transportation developments. For example, by taking advantage of revitalized barge transportation, the commercial coal industry was able to re-enter many markets that had been closed to it. The economical movement of coal by barge made possible savings that could be passed on to consumers. The same is true of grain and petroleum.

Cooperation with carriers, many of whom are strengthening their advisory services to shippers, will also often bring economies.

The quickening developments in containerized transportation will open a whole new area of cost reduction, with true coordinated use of all modes of transportation.

"Transportation, one of the primary factors of our growth and change,

is itself undergoing great change," commented Senator George A. Smathers (D., Fla.), chairman of the Subcommittee on Surface Transportation. His remark strikes at the root of the physical distribution problem confronting every business in its war on costs.

Recent and impending developments complicate the transportation pattern. The responsible manager working for greater efficiency must do much more than keep abreast of what has been happening in the traditional means he uses to move goods. He must also be on top of the wide and flexible choices in modes of transportation and related services. More significantly, he must try to evaluate what is over the horizon.

Recent hearings and public statements have given ample notice to every shipper of the serious situation in which the transportation industry—especially the railroads—finds itself. But despite internal fiscal needs and heavy tax burdens, and perhaps as a result of facing up to the facts of competitive life, carriers have shown tremendous interest within the last five years in serving the shipping public better.

In our contacts with carriers and their equipment suppliers, DR&MI has observed the increase in research for ways to eliminate all avoidable handlings, cut down on delays and damage in transit, and provide advisory services to shippers on how to reduce their internal handling operations.

One big unit?

The railroads want much greater freedom to enter into trucking and even air, water, and pipelines. Some carriers will continue trying to prevent this kind of integration. In the meantime, there is no reason why effective coordination (piggyback and fishyback by container shipment, for example) cannot be achieved. Coordination of the best uses of transportation will come when top management takes a real interest in *all* forms of transportation and insists upon the most efficient use of all kinds of carriers. This is especially important now that the so-called "department-store" type of transportation is farther away than ever. Advocated by many railroad executives at the Senate hearings in Washington early this year, this system would combine all modes of transportation—rail, truck, air, inland

and now they're planting roses

WILD ROSE
WISCONSIN

Wisconsin communities want industry. And they're doing something about it — with action, not words! Take Wild Rose. Population 582. Kieckhefer Box and Lumber Company was interested in building here if they could get local support.

In less than a week this small community had raised $125,000 to help finance a new plant. Within 10 months Kieckhefer was in production in their new factory.

This bustling town then launched a civic improvement program that has earned them national recognition. They are one of eight towns still in contention for the top award in the Sears-Roebuck Foundation's National Community Achievement Contest.

Civic improvements include a new library, village park with well-stocked trout stream, social center, playgrounds . . . and an ambitious plan to make Wild Rose the *"Rose Capital"* of the nation. Everybody in town is planting roses. Over 1500 rosebushes already growing — along every street and roadway, in tribute to the town's name.

What has happened to Kieckhefer in Wild Rose can happen to you — in Wisconsin. Because scores of communities are ready, willing and able to help industry build and grow.

Want to know more about the do-it-ourselves spirit we're famous for and the advantages Wisconsin offers industry. Write Robert Koob in the Governor's office. Ask for the Wisconsin Industrial Fact Book.

Division of Industrial Development
Governor's Office, Madison 2, Wisconsin

WISCONSIN did

waterways, and even pipeline—in a single, large, integrated service. But Laurence K. Walrath of the Interstate Commerce Commission has gone on record against this proposal. "Perhaps a century ago, before duplicating facilities were established, such a system, carefully regulated, would have best served our needs," he says. "But today it would not be an easy solution."

Weighing the benefits

What is the over-all picture of America's transportation? Each kind of transportation has its advantages (page 66) for certain types of commodities and hauls and for specific situations. In assessing the advantages, the shipper must keep his total distribution problem in mind, balancing and choosing in relation to handling, storage, and customer-service factors.

Millions are being spent by the railroads on "pushbutton" freight yards and electronic data processing to beat their greatest shortcoming—delay in terminals and classification yards. Examples are the Pittsburgh & Lake Erie's $8 million automatic freight classification yard at East Youngstown, Ohio, and Santa Fe's $20 million "pushbutton rail yard" near Chicago (page 80), both opened within the past few months.

Trailer-on-flatcar (t.o.f.c. or piggyback) services, first thought of more than 50 years ago, have been expanding with innovations in the methods of transferring and tying-down trailer bodies and the revival and improvement of the old idea of containerized transportation. In 1957, approximately 20 per cent more rail cars were loaded t.o.f.c. than in 1956 on 47 roads reporting on the service to the Association of American Railroads. As recently as 1950, only two roads offered the service. In recent years the railroads have been handling edible bulk commodities, particularly flour and, to a limited extent, sugar in covered hopper cars.

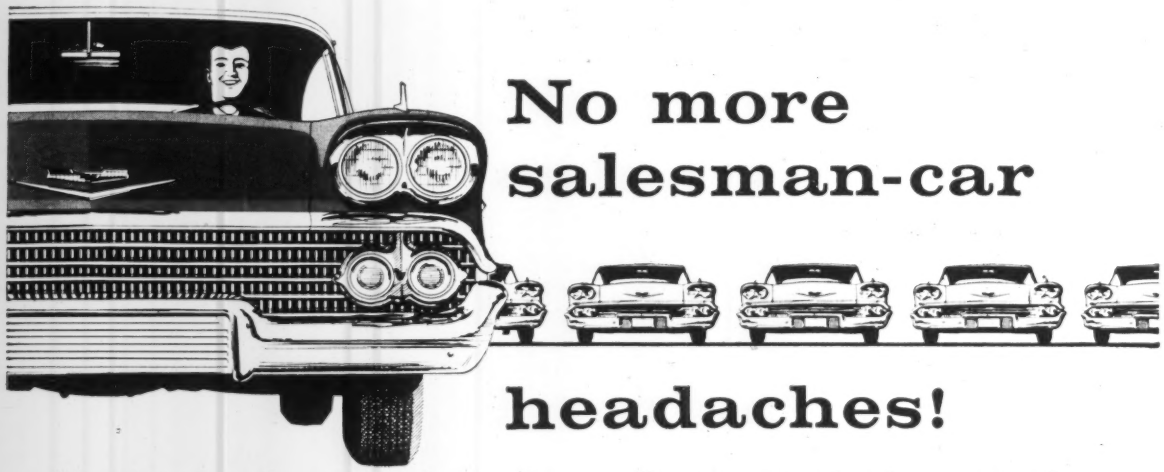
The Western Traffic Association, composed of the chief traffic officials of all the western railroads, has recently organized three research groups to work with shippers and railroads to improve packaging, handling, and service in general.

The Customer Relations Council of the American Trucking Association has brought motor carriers and shippers together to discuss mutual problems and further individual carriers' advisory services on efficient handling and dispatching. Many railroads have intensified their industrial development services, aiding industry in plant location and development of natural resources in their territories.

News on the highways

Highway carriers have grown up not only in size of operations but in responsibility of service. Mergers have accentuated this trend. The size of vehicles has increased with the growing ingenuity of equipment manufacturers in stepping up payloads within state-imposed limitations. The average weight of many components has been cut down by new materials, which spur designers to strive for greater cubage within given weight loads. Manufacturers have progressed from the use of stainless steel and aluminum to magnesium, with titanium and plastics in the offing. The Fruehauf Trailer Company is preparing a 7,000-pound trailer, compared with models twice that weight a decade ago.

The use of refrigerator trucks has been snowballing in the past decade. Until a few years ago, as much as 90



No more salesman-car headaches!

Hertz car lease plan gives firms central control of nation-wide car fleets. Send for free booklet.

Here's the plan that gives your firm complete, centralized control of company cars: The Hertz Plan of Leasing Cars. Hertz will lease you brand-new cars for all of your salesmen and executives anywhere in the United States or Canada. And the whole operation will be handled by Hertz! No more squabbles with your salesmen over mileage reimbursements. No more worries about budgeting costs, licensing, servicing, maintaining, repairing, replacing the cars—those million and one time-consuming details.

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P-S® BAR RACKS..

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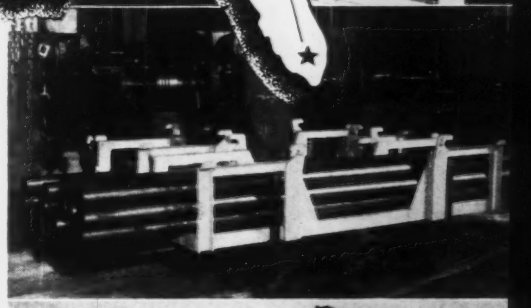

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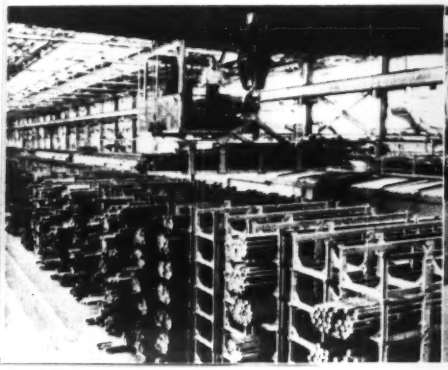

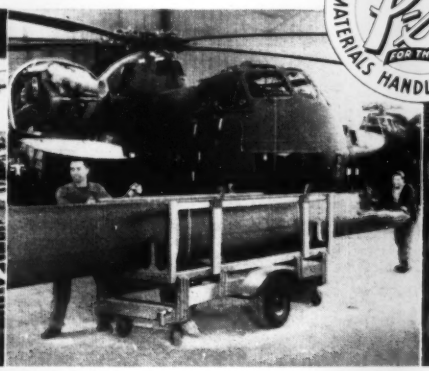

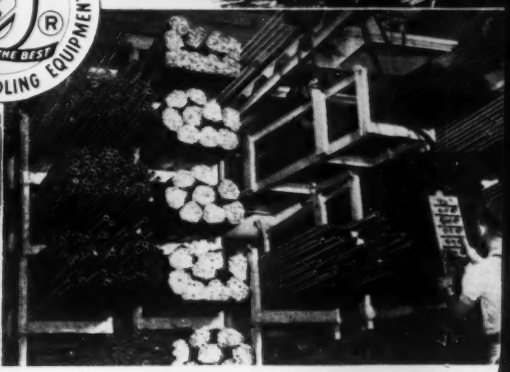

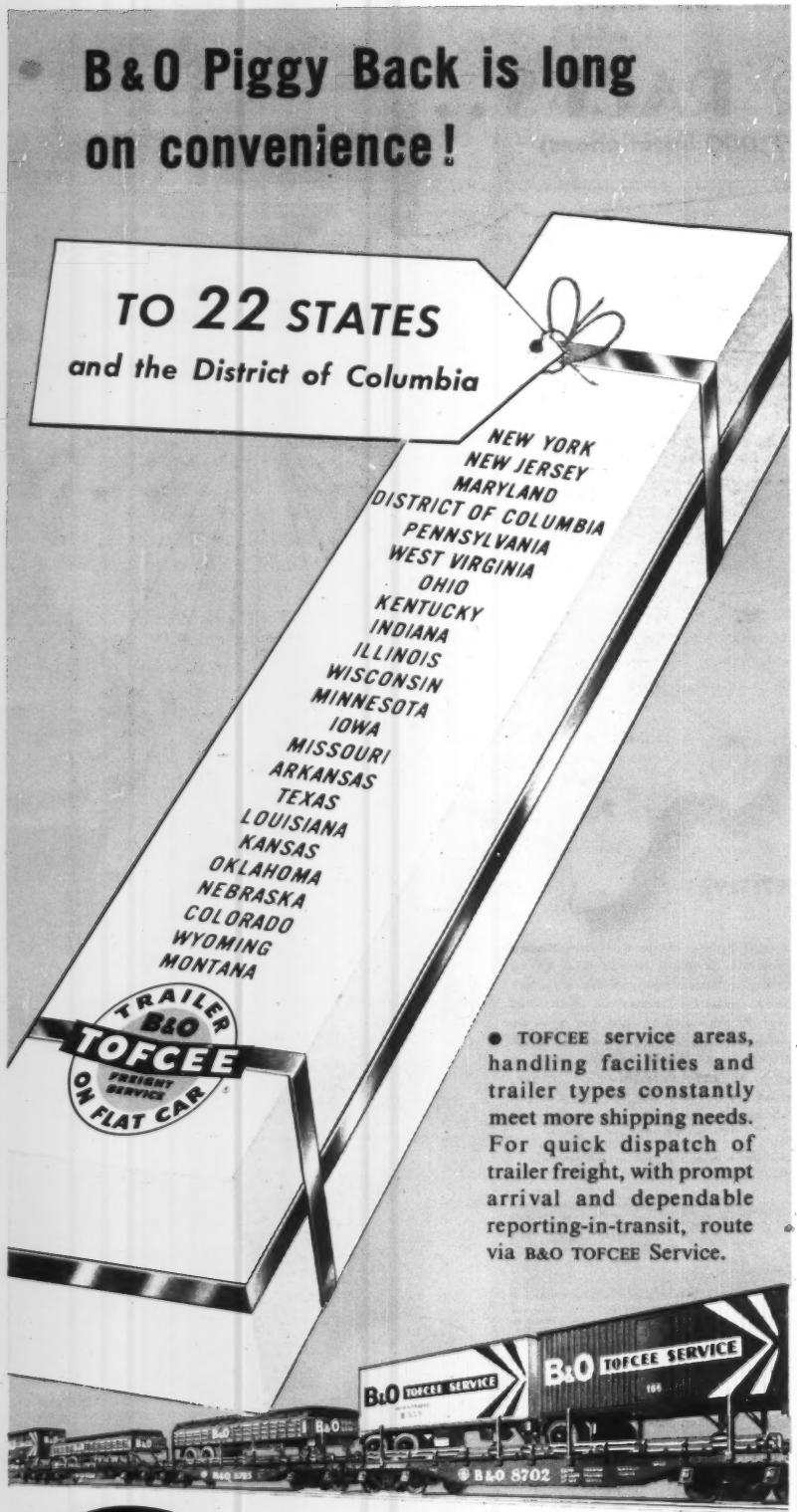

B&O

George E. Dove, Manager Railroad Trailer Service
Baltimore 1, Md. Phone LExington 9-0400

BALTIMORE & OHIO RAILROAD

Constantly doing things—better!

per cent of frozen foods were handled by truck. Motor carriers still have most of the business, although competition has led to sharp improvements in rail refrigeration over the past five years.

Rail, highway, and water carriers have greatly broadened the application of tank transport for bulk liquids and other products requiring special handling at a wide range of temperatures and pressures. The Tank Truck Council of the American Trucking Association says that on the average haul under 200 miles, the turnaround time for a tank truck is between eleven and thirteen hours, as compared with about about eight to ten days for tank cars on similar hauls.

Getting ready for jets

Airlines are committed to extensive modernization of handling facilities in preparation for the jet age, due in 1959, although all-cargo jet planes are at least three years away, according to industry leaders. American Airlines is in the midst of a $96 million construction program for ground facilities, much of which will improve freight handling. United is literally putting its air freight terminal at Chicago's Midway Airport on wheels. In facilities now nearing completion, the freight will be placed on roller conveyers when it arrives at the truck dock, then stored on rollers until dispatched for loading on planes.

Air freight should certainly be investigated by smart shippers seeking to lower total distribution costs. Unlike other forms of transportation, air freight is less expensive now than when it was introduced in 1944. It is no longer exclusively an emergency service, and many firms now ship in quantity by air on a regular daily basis. Stories of a 60-foot, 20,000-pound turbine shaft that was moved by air because of a plant breakdown are dramatic, but such shipments are now the exception and are dwarfed by the regular flow of commercial traffic. For example, companies like Grumman Aircraft and Republic Aviation make daily shipments of machine parts by air. Wearing apparel, toys, and printed matter are now routinely consolidated in quantity by air freight forwarders. Fresh-picked produce and flowers are flown daily from the West Coast and Florida to the Northeast.

Perhaps one of the most exciting recent developments has been the "rediscovery" of barge transportation. In

Furniture's on the move... with TUFFLEX

—on the move from retailer's floors to customers' homes, that is! This unique cellulose cushioning—TUFFLEX®—is helping to speed furniture sales and build retailer's profits.

And why not? In dinette chairs—in upholstered furniture of all kinds—Tufflex makes possible a better looking product with a quality "feel." Every day Tufflex is padding and cushioning more backs, seats, decks, loose cushions, arms, and trim strips. Tufflex doesn't bunch, doesn't sag, cuts with firm, true edges, stays in place, is uniform in texture.

You can get Tufflex and the new Tufflex non-woven fabrics in a wide variety of types and thicknesses with widely varying characteristics. Tufflex products can be cut to intricate patterns...can be laminated with various backings.

Tufflex products are solving many a knotty problem for industries today. Perhaps Tufflex can help YOU—complete information and samples are yours for the asking. Wood Conversion Company, Dept. 239-68, First National Bank Building, St. Paul 1, Minnesota.

...and for handbags, luggage

—as well as other padded products, Tufflex non-woven Fabrics help create a smooth, luxury look that appeals strongly to customers. These easy-to-handle non-woven fabrics, used under plastic or other coverings, make possible the trim, tailored lines that spell quality. Tufflex Fabrics also make excellent fillers and pads for use in garment manufacture.

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50,000% INCREASE IN POPULATION

since 1900 in industrial

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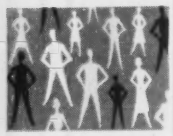

Fabulous growth in Long Beach city and Los Angeles-Long Beach Metropolitan Area populations characterizes this market — the fastest growing one in America, if not the world. Long Beach is the No. 2 city in the nation's second most populous county. Over 300,000 persons move into the county annually to make their homes here. With $11½ billions in purchasing power, this metropolitan area is without rival anywhere in expanding industrial marketing opportunities.

The Port of Long Beach Extends Our Markets throughout the World.

With this ever-growing market, the city's Harbor has spared no effort to speed world trade through Long Beach. Wide apron wharves, great transit sheds expedite the mechanized handling of cargoes. Fork-lifts and package trains save shippers' time and losses. Radar-radio ship control keeps Port traffic moving.

The rising pace of manufacturing-marketing in this growing Long Beach economy is just one of 12 industrial advantages awaiting you here.

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many hauls, new operational skills combined with the latest equipment enable inland water carriers to equal the turnaround time of seemingly faster competitors. Now that they can operate in good weather and bad, day and night, barges often offer the lowest transportation costs for big loads of basic raw materials.

Construction of powerful twin-screw towboats, almost as long as a city block, has made tows of 30 or more barges a common sight on the Mississippi. These tows, many of them longer than the Queen Mary, carry loads equivalent to the tonnage moved by 500 railroad hopper cars.

The chemical industry's adoption of waterways transportation has stimulated construction of special-purpose barges. For example, in 1950 the Freeport Sulphur Company began to carry molten sulphur in a "Thermos-bottle-type" barge. The sulphur is pumped into tanks at 300 degrees—60 degrees higher than its melting point. In 1952, Freeport Sulphur's traffic department made a study of the comparative cost of shipping by rail and river from Port Sulphur, La., to St. Louis. It found that with average barge loads of 1,200 tons, it could save $10,000 per barge load over rail.

Underground transportation

Unseen and even unknown to most people, a vast network (over 200,000 miles) of underground pipelines transports petroleum and petroleum products, principally for private facilities. (The ICC requires companies offering pipeline transportation "for-hire" to file tariffs.) Flow is usually in one direction, although in some instances it has been reversed. The chemical industry uses pipelines for raw materials and some finished products over relatively short distances. Pittsburgh Consolidation Coal Company's 108-mile pipeline, the first to move coal any great distance, has been in test operation since April, 1957, and is just now coming into full use. The line, 4 feet under the surface, stretches from Cadiz, Ohio, to the Eastlake power station of Cleveland Electric Illuminating Company. Coal is cleaned and crushed to proper size and mixed with water to form a slurry for pumping. The contract with the power company calls for delivery of 18 million tons over the next fifteen years. It is estimated that this new form of transportation will probably result in savings of $1 a ton.

NEW "Lift of 1001 Uses"

Weld-Bilt HY-BOY VERTI-LIFT

Does More Work FASTER . . . CHEAPER

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Cartons, Pallets, Drums

Prove this yourself . . . New HY-BOY Electro Hydraulic Verti-lifts "just fit" more handling, lifting, stacking jobs in your plant than any other unit! And at lower investment! Modern push-button control. "Untized" power unit, built-in charger, indicator light and ammeter, self-aligning floor locks, and other features — plus a wide choice of models and accessories — make HY-BOY your best investment by any comparison. Buy one, buy several . . . and prove it.

Get your copy of new HY BOY Portable Verti-lift Catalog featuring the "Lift of 1001 Uses."

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Materials Handling Engineers since 1932

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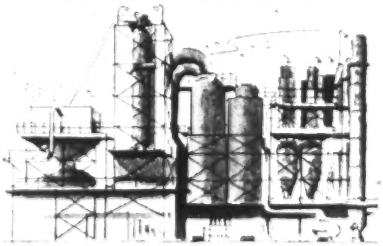

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FASTEST GROWING CHEMICAL AREA IN THE UNITED STATES

Located in the center of the nation's greatest markets, in the center of essential resources, in the center of expanding opportunities . . . . . these are the potent advantages West Virginia offers industry.

In addition you will find ample power, abundant water, natural gas, transportation, mountains of coal, keen, versatile workmen, mild climate, and cooperative civic and governmental agencies eager to assist you. Investigate West Virginia.

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We are anxious to help you! Write: Don Crislip, Executive Director, West Virginia Industrial and Publicity Commission, State Capitol, Room 31, Charleston 5, West Virginia.

Dodge has increased its share of heavy-duty-truck sales by 54%... the reasons why are important to you!

Latest annual registration figures prove that Dodge has increased its share of heavy-duty-truck sales by a whopping 54% over the previous year. These *reasons why* are especially important to fleet owners:

Dodge Heavy-Duty Truck Centers. New conveniently located Dodge Heavy-Duty Truck Centers stock a wide range of medium- and heavy-duty trucks. The Center serving your local Dodge dealer makes possible prompt delivery of the model truck you need . . . quick conversion to your exact specifications and equipment requirements . . . super-fast parts service.

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Dodge economy starts with low price, and continues with top mileage on *regular* gasoline. The exclusive Power-Dome V-8 engine keeps maintenance and down time at a minimum, too.

Find out all the reasons why Dodge heavy-duty trucks are making such sales gains—see your Dodge dealer soon!

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STAPLE FILLED CARTONS TOP AND BOTTOM AT SAME TIME FROM THE OUTSIDE!

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International
DUAL STAPLER

CUT MANPOWER! One man can staple all your cartons.

CUT TIME! Up to 1,000 cartons, top and bottom, per hour.

CUT SPACE! No more space-robbing set-ups — just fill staple and ship.

INTERNATIONAL Gold Crown ISM STEEL STAPLES SEAL SECURELY

International Staplers

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Originators of Carton Closing Staplers

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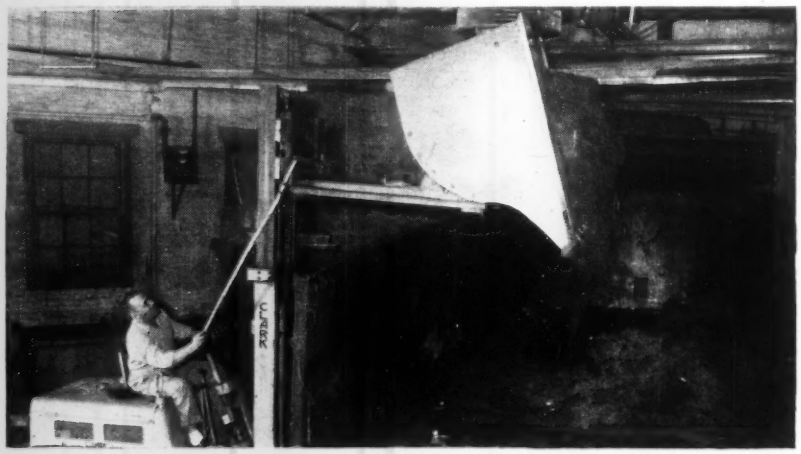

How American Rivet Co. gets higher scrap prices.

American Rivet Co., Chicago, replaced oil drums with 15 Roura Self-Dumping Hoppers for collecting metal scrap. These Hoppers, labeled to indicate the type of scrap they contain, are stationed in the machining areas. Chips and turnings, collected in tote pans, are emptied into the Hoppers. When full, a standard lift truck moves the Hoppers to the loading dock. The operator merely flips the latch and the Hopper automatically dumps its load into the dealer's truck, then rights itself, locks itself and is ready for another load. One man does the entire job. Scrap, segregated by type, brings higher prices. Handling costs are cut to the bone.

Perhaps Roura Self-Dumping Hoppers can cut costs and save time for you, too, in handling hot or cold, wet or dry bulk material. When there are problems of contamination or corrosion, stainless steel or stainless lined hoppers can be supplied.

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Pipeline is the lowest-cost form of transportation, but its use depends upon huge and continuous volume, one-way, of a strictly limited class of commodities.

As to the future of all forms of transportation, over-the-horizon forecasts in the table on page 67 are not "blue sky." They are foreshadowed by developments which are now under way.

The standardization problem

Practically all transportation men interviewed by DR&MI agreed that "fantastic savings" will be possible through the logical extension of practical shipping containers adaptable to trucks, rail, and ships. Perhaps the greatest block to their widespread acceptance is the understandably self-centered viewpoint of the carriers. In design and application, railroads and truckers naturally tend to favor their own services. This attitude also exists among individual trucking companies. Some shroud their new developments in secrecy to gain an advantage over a competitor. Transportation men realize that unless the carriers get together on standardized design, there will be no practical interchange of containers. Interchange, with eventual container "pools" for shippers to draw on, must be the ultimate development. In recognition of the importance of standardization, a group of manufacturers and carriers formed The Container Committee, which in April announced its recommendations for container dimensions and construction features. Among the companies involved are Minnesota Mining & Manufacturing, Clark Equipment, Reynolds Metal, and Spector-Midstates Freight System. Information on specific recommendations is available from the Electromotive Division of General Motors, La Grange, Ill.

According to Chairman E. V. Hill of the Eastern Railroads Conference, the next few years should see the railroads inaugurate a flat per-mile rate for containers, regardless of contents. In fact, one large retailing organization in the East has already scored such a coup as the result of the heavy volume of freight it gives the cooperating railroad. Shippers should prepare for such developments now by thinking about the way containerization will affect their handling, scheduling, and layout.

END

TRANSPORTATION TEAM

continued from page 72

half as many seek the potential economies in consolidating inbound shipments. Among the other services to purchasing were these (check to see if your traffic department can provide them):

- Specifying type of packaging required from suppliers to reduce loss and damage claims
- Assisting suppliers in securing rate reductions
- Auditing transportation costs on FOB destination shipments
- Obtaining rate reductions so purchasing can use lower-cost suppliers
- Working with purchasing to achieve lower transportation costs or finding a lower-cost supplier.

Two-way traffic control

Of course, there are other important ways that traffic cooperates with the manufacturing division in addition to the two listed in the table on page 72. The most important is tight scheduling of inbound shipments to keep production lines running without increasing the volume of materials in transit.

Some traffic executives work closely with manufacturing to allocate production among several plants, based on the lowest delivered cost. Says the traffic manager of a brewery, "In cooperation with the general production manager, we control the level of output by product each month for each of several plants through an analysis of the transportation costs to various markets and changing production costs at various plants." END

COST OF MOVING GOODS

Meaningful comparisons between various modes of transportation depend on many things—type of product, product mix, services provided, and so on. The following "rule-of-thumb" schedule gives a shipper an idea of the margin he has to play with when he balances savings in related costs of warehousing, inventory investment, special packaging, and the like against additional charges for higher-cost transportation per ton-mile:

Air freight	17-22c
Railway Express	13-16c
Truck	5-8c
Rail	3-6c
Barge	2-5c

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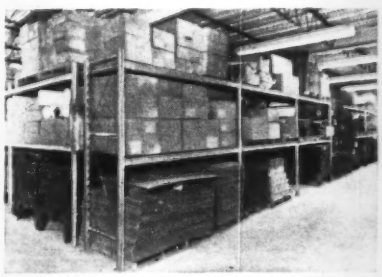

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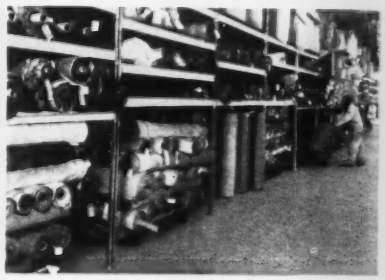
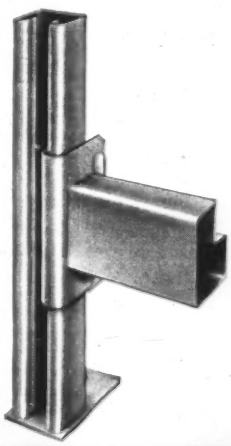
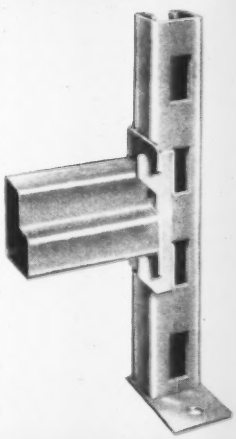




View on left shows the smooth line construction of the aisle side of post and stringer. There are no protruding edges to create hazards. View on right shows the rigid connection when the stringer is "locked" to the post. Both views show the "L" shaped tubing (no open seams —it is a one-piece, continuous welded tube). Stringers raise and lower like a window.



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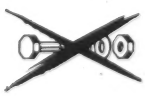

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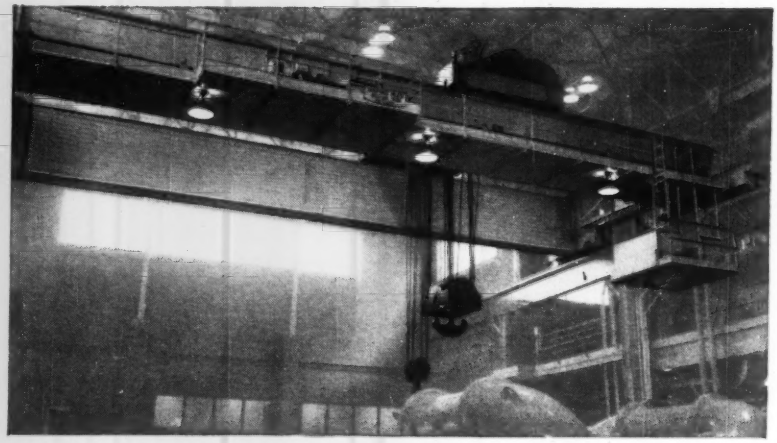

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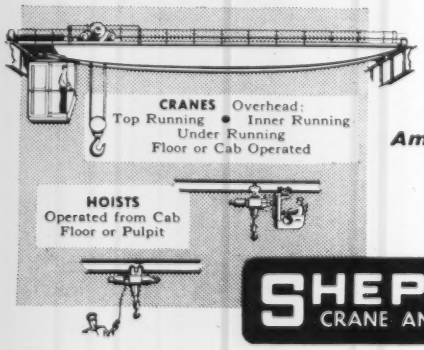

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COMPANIES HIT THE ROAD

continued from page 86

tial as a starting point in assessing private versus common carriers. Some opponents of private carriage insist that it is this differential alone that accounts for the boom in private trucking in the postwar period. But our survey of 458 manufacturers shows the average cost saving from operating their own trucks is considerably higher.

Of the 375 companies with their own fleets, about 22 per cent provide specific data on resultant savings. The average saving varied from 13 per cent for paper and pulp manufacturers to 30 per cent in the stone, clay, and glass industry. Some companies reported savings of as much as 75 per cent, but the average in most industries was about 20 to 25 per cent.

Some problems, too

But despite the economies many companies achieve by operating their own trucks, all is not smooth riding. About 20 per cent of the surveyed companies report troublesome problems, including empty backhauls, maintenance, difficulty in achieving full use, the high cost of repairs on the road, and driver unionization.

Empty backhauls are one of the most serious vexations. About two thirds of the 375 manufacturers report deadheads on some trips, and one third on most trips. The problem is more serious for the food industry, with 54 per cent reporting empty backhauls on most trips, than for paper and pulp manufacturers who reported 16 per cent.

Only 27 of the 375 companies say that their trucks deadhead on every trip, and most of these use special equipment, such as liquid chemical tank trucks that cannot be used to haul back dry cargo. (For one solution to this problem, see DR&MI, November 1957, page 119.)

To prevent deadheads, traffic executives are carefully planning delivery routes of their trucks and are working closely with purchasing departments to arrange pick-ups for the return trip. One company insists on "constant diligence in watching inventories and possible sources of supply" to prevent deadheading. Some companies use common carriers for all shipments to an area that doesn't provide a backhaul.

But companies that use their equip-

ment primarily for short hauls are not troubled by deadheading. They like to be able to speed service by having empty trucks readily available for quick reloading.

The practice of using company-operated trucks to pick up raw materials has been spreading in recent years. About 75 per cent of the companies with trucks regularly use them for this purpose. Of course, the practicality of this system depends on the nature of the goods moved. For instance, in the textile industry, 82 per cent of the companies pick up raw materials with their own trucks. However, in the chemical industry—where the rails still garner the bulk of the raw material movement—only 42 per cent regularly fetch their raw material in their own trucks. Many companies are not aware that they can operate their trucks as common carriers on the backhaul for certain exempt commodities (such as fresh farm products), provided no other goods are moved in the same haul.

How many trucks?

The size of truck fleets depends more on the type of business than on company size. For instance, in each of the seven size groups of manufacturers (page 68), the largest fleet was operated by a food company.

And the industry with the largest average truck fleet was food manufacturing. While textile manufacturers have an average fleet of three trucks, food makers report fifteen. Food truck fleets ranged from 1 to 10,000; textiles, from 1 to 70.

In some industries the practice of owning rather than leasing trucking is common. For instance, 91 per cent of the companies in textile manufacturing only own (they do not lease) trucks, in contrast to 36 per cent in electrical machinery, the industry with the lowest percentage.

The practice of using owned equipment exclusively is much more prevalent among medium-size companies than among small or large ones.

Only 8 per cent of the surveyed companies rely entirely on leased rolling stock. Although 30 per cent of furniture manufacturers use only leased equipment, 7 per cent of the makers of instruments and similar products use leased equipment exclusively.

Maintaining their rolling stock is troublesome for many companies. Consequently full-service leasing has

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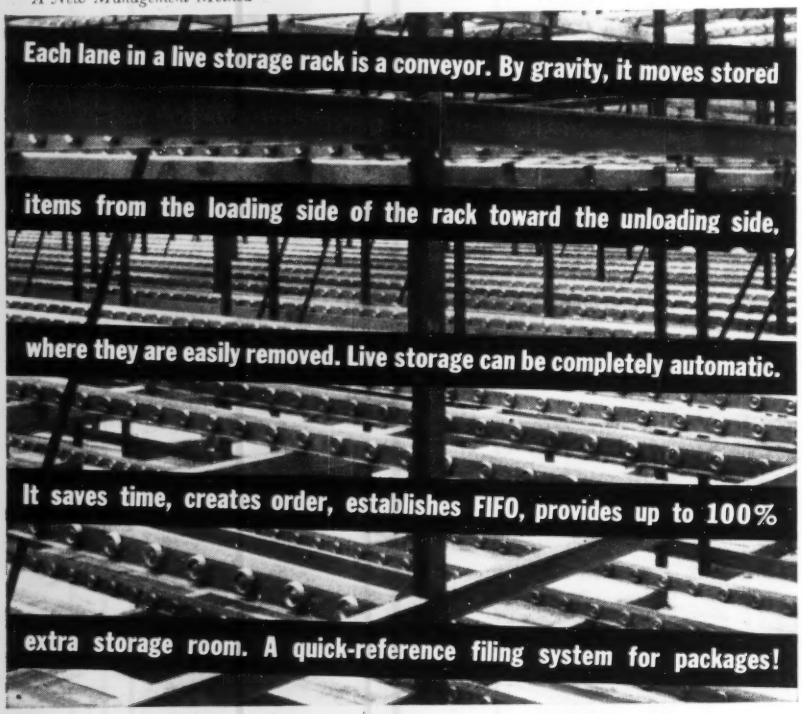
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recently grown much faster than finance leasing.

Only 38 per cent of the surveyed companies service their trucking equipment, ranging from 7 per cent in the furniture industry to 65 per cent for chemical producers. Larger companies are generally more inclined to do their own servicing than smaller manufacturers.

There is little variation in the average number of years manufacturers of various sizes operate trucking equipment before trading it in. Small manufacturers run trucks for about four years on the average. Medium-size companies report five years, and large companies fall between with an average of four and a half years. However, there are noticeable variations in the extremes reported by some companies. For example, no small company operated trucks more than five years. But a number of medium-size companies kept theirs on the road for ten years. And some of the large companies depreciate trucking equipment over a twenty-year period. END

GETTING TOGETHER

continued from page 86

distant markets were cut off by freight costs and minimum shipments became prohibitive, potential users joined in pursuit of a common goal —sales at low delivery prices.

Some shippers' associations have failed, mainly because of insufficient tonnage and poor planning. Delayed car movements resulted in unsatisfactory service and, finally, loss of customers.

Some associations became involved in investigations of—and even prosecutions for—ICC violations or improper practices. Shippers or associations and carriers are equally liable to many of the penalty provisions of the Act. In cases of financial setback or unexpected obligation, members share the burden.

Generally the nature or classification of merchandise for shipment is not restricted, provided the commodity is packed well and can be loaded without danger of damage to other lading. Associations are usually formed by companies shipping similar merchandise, but it is not necessary to handle only related products.

Membership is not limited in number, since tonnage must be sufficient to make shipping cars to a central

point practical. Two or more shippers should use at least one car a week at the start. Regularity of car forwarding is highly important, because sacrifice of service to customers may jeopardize sales, thereby defeating the original marketing purpose.

Most associations, though not all, charge membership fees and annual dues. Some associations carry insurance to cover damage caused by hazards of nature, such as floods and hurricanes. (Common carriers do not offer this protection under bill of lading contracts.)

Listing the benefits

Direct advantages gained through successful group shipping are:

- Reduced total freight costs
- Fast and reliable delivery service
- No penalty for small shipments
- Minimum stocks because of constant flow of merchandise from manufacturer to stores
- Shipments pinpointed through manifest tracing
- Reduced claims through systematic freight handling

Local chambers of commerce or trade groups in practically all large cities will help organize shippers associations. No company without a full-time traffic manager or the help of a transportation consultant should attempt to form one. Here are some factors to be considered:

- The association must be non-profit.
- Service must be limited to the membership. Proportional shares of the freight bill should be paid only by members.
- The association should not solicit freight or advertise.
- An experienced operator of pooling should handle operations.
- Steady volume for frequent car movement should be assured.

How does a typical shippers' association work? Take a look at Chicago Shippers Association, founded in 1949. Its members now include Spiegel Inc., W. T. Grant, Montgomery Ward, Sperry & McHutchinson Company, S. H. Kress, F. W. Woolworth, McLellan's Stores, H. L. Green Company, and 32 other concerns. Archer G. Milligan, traffic manager for Sperry & McHutchinson Company, is president.

Affairs are administered by the Board of Directors, drawn from members. No officer may serve for more than three years. Before the admission of a new member, it must be de-

Are you forcing Traffic to "go it alone"?

Industry spends fifty billion a year on transportation – a cost exceeded only by materials and labor.

Yet, the man in charge of transportation – the traffic manager – is too often regarded as a shipping clerk who reports to middle management. Left to his own devices, he is unable to perform efficiently because he lacks the ear of those best able to appreciate and take profitable advantage of his specialized knowledge of an intricate subject.

And intricate it is, involving a complex of rates, carriers, routes, inventories, destinations, warehousing, schedules.

The traffic manager can save his company thousands of dollars every month by intelligently coordinating these variables. But he can't go it alone. Only if he enjoys the confidence of management and the authority to work on an equal basis with those in charge of purchasing, production, materials handling, packaging, sales and the like, can he make the most effective contribution to his company.

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termined that both the applicant and the CSA will benefit. Companies pay a $25 membership fee and annual dues of about $50, based on freight handled. A shippers' agent is engaged to perform terminal handling and clerical duties. Additional personnel consists of an executive secretary, a full-time stenographer, and two part-time clerks.

By regularly consolidating and shipping cars to Chicago from New York, Philadelphia, Boston, and so on, fast service is reasonably assured.

Carriers and member firms negotiate delivery responsibilities between themselves. For example, when a member receives damaged goods on delivery, he files his claim directly with the railroad after the association supplies him with the necessary papers.

When a plus balance is indicated at the end of the year, after projection of operating expenses, the administrative fee, based on freight handled, is reduced to liquidate the excess before the fiscal year ends. Deficits are met by raising the fee.

Members eventually pay the cost of all operations as part of the total freight charges. They are apportioned their share on manifests, and itemized bills prepared at destination are sent members. The association in turn settles with rail carriers and consolidators. Members are charged (1) the rail carload rates (regardless of their share of tonnage), (2) fees for consolidators' services and expenses at terminals, (3) pick-up and delivery charges paid to other truckmen, (4) incidental expenses, plus a proportion of the transportation tax. At no time are member concerns charged an average rate.

The ICC has consistently recommended to Congress the amendment of the exempt provision relating to shippers' associations, contending that some operate as freight forwarders without proper authority, and that they are not real nonprofit associations. So far the legislators have turned a deaf ear to this plea. Shippers associations are apparently here to stay—and will probably expand even further. END

ROUND-TABLE CONTRIBUTORS

The men listed below were among the participants who provided valuable information at day-long DR&MI editorial round tables on transportation and traffic management.

R. A. Algmin, *The Shippers Guide Company*; C. W. Bent, *Clark Equipment Company*; Arthur Berg, *Kramer Brothers Freight Lines*; Michael Braude, *Emkay, Inc.*; Murray Campbell, *Baltimore & Ohio Railroad*; James Chavis, *Evans Products Company*; Jesse M. Cody, *Butler Brothers*; G. A. Craig, *Lockheed Aircraft Corp., Inc.*; A. A. Dailey, *Santa Fe Lines*; J. Danek, *Flying Tiger Air Line Inc.*; E. L. Dare, *United Airlines*; William Ehalt, *Eastern Traffic Bureau, Inc.*; Andrew Gantiner, *Hertz Corp.*; M. S. Garfield, *Garfield-Linn and Company*;

William Gribble, *Pillsbury Mills, Inc.*; J. A. Hart, *National Biscuit Company*; A. F. Hatcher, *Rock Island Lines*; L. C. High, *Campbell Soup Company*; Donald E. Horton, *American Warehousemen's Association*; W. M. Keller, *Association of American Railroads*; Arthur F. Lane, *Chas. Pfizer & Co., Inc.*; O. K. Le Bron, *Hertz Corp.*; Thomas H. Maguire, *Western Traffic Association*; G. Marames, *The Chemstrand Corp.*; Fred Muller, Jr., *American Car & Foundry Division, ACF Industries, Inc.*; Fred S. Neumann, *Fruehauf Trailer Company*; William Noorlag, Jr., *Central Motor Freight Association of Illinois*; Larry Owen, *Clark Equipment Company*;

Herman Schroeder, *ESSO Standard Oil Company*; George M. Shutes, *American Airlines*; H. M. Sims, *Association of Western Railroads*; C. E. P. Smith, *General Motors Corp.*; E. A. Smason, *Hertz Corp.*; Daniel S. Sundel, *Piggyback, Inc.*; Carl M. Swanson, *American Brake Shoe Company*; Stephen Tinghitella, *Commerce and Industry Association of New York, Inc.*; Charles Trayford, *Charles H. Trayford & Associates*; R. R. Whelan, *Clark Equipment Company*; H. C. Yerger, *Union Pacific Railroad*; O. P. Young, *Ebasco Services, Inc.*; Otto Zimmerman, *Illinois Central Railroad*.

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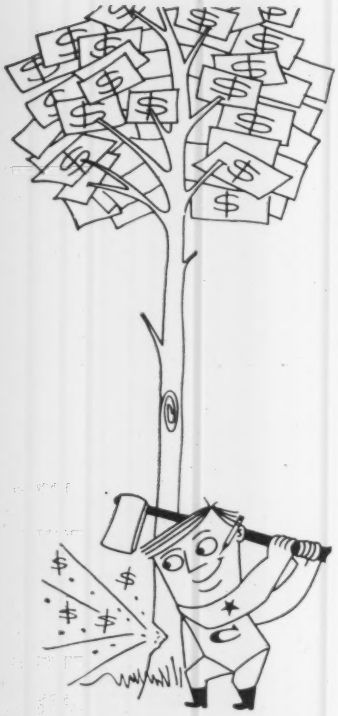

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Life Among the Hucksters

MADISON AVENUE, U.S.A. *by Martin Mayer. Harper & Brothers, 49 East 33rd St., New York 16, 332 pages, $4.95.*

The product of hundreds of interviews, this book is an outsider's report on advertising—its personalities, its shoptalk, and the inner workings of the big agencies—capped by a trenchant analysis of how this $10 billion industry influences the American economy, our politics, and our daily life.

Minority Report

THE AMERICAN STOCKHOLDER *by J. A. Livingston. J. B. Lippincott Company, East Washington Square, Philadelphia 5, 290 pages, $4.95.*

The author views the typical American stockholder less as an example of "people's capitalism" than as a member of a rather small group of absentee owners who "wish not to be bothered—except by dividends." Management comes in for some knocks as well. Mr. Livingston softens his sharp analysis with many entertaining, gossipy anecdotes.

Salesman's Tools

SUCCESSFUL INDUSTRIAL SELLING *by David D. Seltz. Prentice-Hall, Inc., Englewood Cliffs, N.J., 256 pages, $5.65.*

Written primarily as a guide for the industrial salesman, this book also offers management helpful insights into what makes, motivates, and aids a good industrial salesman.

Antitrust, Pro and Con

A STUDY OF THE ANTITRUST LAWS *by Joseph W. Burns. Central Book Company, Inc., 261 Broadway, New York 7, 574 pages, $12.50.*

A comprehensive assessment of the U.S. antitrust laws, this study presents a full discussion of the pros and cons. Mr. Burns, a lawyer, was formerly chief counsel and staff director of the antitrust subcommittee of the Senate Judiciary Committee. This book reports on a study initiated by the late Senator Harley M. Kilgore and carried out under Mr. Burn's direction.

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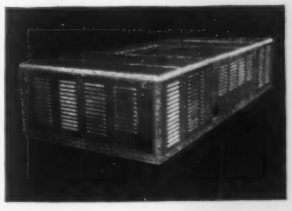

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ALSO: *"Hidden" Catalysts Cure Plastics; Cans of Aluminum*

USE OF radioisotopes in industry is steadily increasing, according to a newly released report by the National Industrial Conference Board. By the middle of last year, 1,500 companies in the United States were using these unstable isotopes, primarily for gaging, X-raying, tracing and analyzing, and process control. This is a 25 per cent increase in one year over the 1,200 companies reported in a comprehensive study of radioisotopes in DR&MI in July 1956 (page 35).

Process control is the most rapidly growing field of application for these ferret-like materials. Other significant applications are in cold sterilization and chemical catalysis.

The Atomic Energy Commission has authorized nearly 3,500 thickness gages dependent on radioisotopes. They are largely used to make sure that cigarettes are round, firm, and fully packed. These beta gages compete with ultrasonic and X-ray gages for thickness.

By revealing which components in gasoline cause harmful deposits and wasteful "surface-ignition," radioisotope studies enabled Esso Research Center, Linden, N.J., to develop some improved gasolines.

Last year the AEC sold about $1.5-million worth of radioisotopes for industrial purposes, according to the Atomic Industrial Forum. About an equal amount was used for medical research. Although the dollar value of radioisotopes in use is not substantial, resultant savings are very high because in most, if not all, applications a little goes a long way.

New Plastics Process

Substantial speed-up in production rates as well as the elimination of scrap losses in the manufacture of rubber and plastic articles should result from a new application of molecular sieves, the name given to unusual 'molecule-size synthetic particles that have the ability to "trap" other molecules. These particles are chemically "loaded" with very active catalysts before being mixed with the raw materials that are cured into either rubber or thermosetting plastics.

When the mixture is heated, the catalyst leaves the molecular sieve particles and cures the raw material into rubber or plastic much more rapidly than the catalysts in common use.

For the thousands of rubber and plastics fabricators in the nation, this new technique means greater production flexibility. Raw materials can now be purchased with the catalyst already mixed in, at slight added cost. With most present catalysts, the raw ma-

INDUSTRIAL WITCH'S BREW: *A blast of fiery carbon monoxide erupts from a huge electric furnace when the molten ore is stirred—a step in producing pure phosphorus at Shea Chemical Company, Columbia, Tenn.*

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The above is the sort of experience many firms are having with Uptegraff. They have been pleased with the good engineering, modern manufacturing methods and top-notch testing equipment that guarantees a fully qualified product—and that are the mark of a well-financed, progressive, independent manufacturer. The prompt, efficient service and follow-through are important bonus values.

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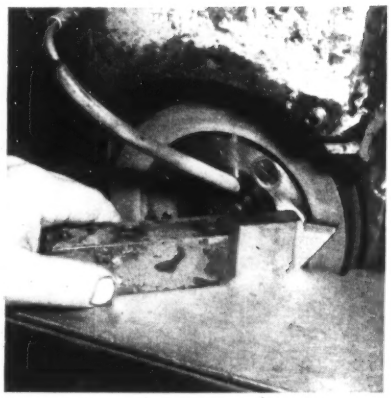

SUPERSHARP: *This diamond-impregnated grinding tool combines electrolytic action and conventional abrasion to give a long-lasting edge to cutting tools at Ryan Aeronautical Company in San Diego, Calif.*

terials can only be worked for a short time—about 30 minutes—before the curing catalyst starts working. This technique also has application in adhesives.

Although the molecular sieve particles remain in the plastic or rubber after they give up the catalyst, they do not affect the material's properties because they are inert and only make up about 1 per cent of the material in the final product.

Molecular sieves, which were first marketed by the Linde Company, New York, about four years ago, are made up of aluminum and silica, synthetically combined. This type of compound also occurs in nature, but not in economically practical concentrations.

This property of being able to "hide" a catalyst until its release is desired can also be useful in other industries. For example, a soap manufacturer is thinking of adding sieve particles loaded with perfume to his soaps. The perfume would not be emitted until water touches the soap.

More Aluminum Cans

Since the announcement last year that lube oil would be sold in aluminum cans, the aluminum can has made considerable headway. Now, U.S. Can Corp., Newport, Ark., is offering an aluminum aerosol can at prices below those for tin. The seamless, six-ounce can is made by the impact-extrusion process.

The aluminum lube oil cans can compete with conventional tinplate cans only because at service stations the empties can be easily recovered for scrap.

—M. M.

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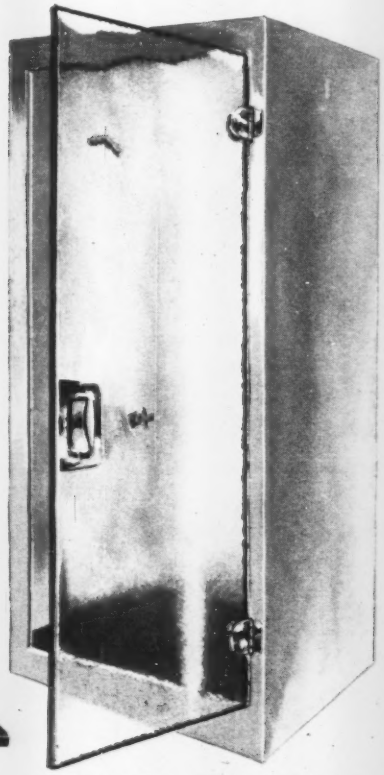
Cosmetic bottle with a thick, smooth coating. Stylish and safe—even for aerosols. Glamorous and shatterproof with a single dip into a vinyl dispersion.



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COMPANY GOES PUBLIC

continued from page 37

2. The company must have both a past and a future.

Every company has a history, and potential investors are sure to study it carefully before investing their money. A company that is considernig public ownership should, if possible, have a long record of successful growth and earning power. An earnings record that compares poorly with others in the industry will not rouse much enthusiasm in the financial community. But modest earnings alone do not necessarily spell failure. If earnings have been plowed back over a period of years to finance growth, the offering may still be attractive. But a poor growth rate—even with a high earnings record—is a serious deficiency. Unless there are other positive factors, chances for a successful flotation may be poor.

Also, a company must be able to point to a promising future. If it belongs to what the financial world calls a "growth industry," so much the better. But there must also be evidence that new products or services are being planned, that earnings are or will soon be large enough to support a dividend, that new markets may be opened, or that new technology may create a new demand for the company's products or services.

3. The company must have a capable management that has proved itself.

In fact, next to growth potential and earnings, the caliber of management is the quality most often studied by experienced investors in sizing up a company's potential. A youthful management is usually thought well of, but a vigorous management, one that is willing to meet problems head on, is even more important. A management with imagination, one that will experiment with new ideas and is interested in research and engineering for the future, is the kind most respected by both underwriters and potential investors.

Companies whose managements fail to show these leadership qualities may get short shrift in the public money market. A careful examination of top management personnel may indicate judicious replacement of weak executives. If this turns out to be necessary, it should be done well in advance of approaching the underwriter.

Duty to the public

Actually, managements of companies considering a transition to public ownership should begin by putting their entire house in order. For one thing, everyone on the management team must understand the implications of management's relationship to stockholders. A special effort must be made to insure

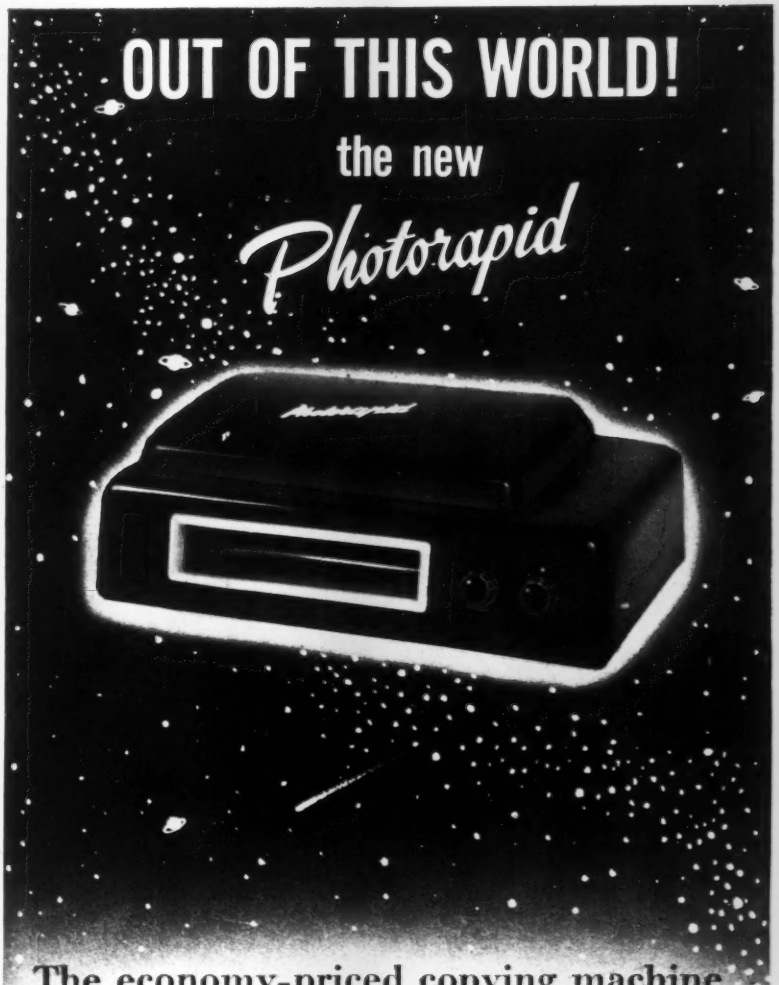
an understanding by members of the management team that they must put their duty to stockholders before their personal desires. This new state of mind should prevail throughout the company's operations.

Setting the stage financially for public sale of securities is extremely important. For example, balance sheet needs should be planned so that debt structure and contractual commitments are appropriate to public sale. Careful examination of existing controls on inventories, receivables, and even expense accounts is highly desirable and can save embarrassment later on when the company is subjected to the expert and relentless scrutiny of investment bankers and the investing public.

THE AUTHOR • Harold M. Altshul joined Ketchum & Co., Inc., in 1930 as an order picker. In less than ten years and at the age of 25, he had worked himself up to the top job of president and general manager. Under his guidance the company has grown until it is now regarded as the fourth largest wholesale drug house in the country. Mr. Altshul was recently elected to the Board of Control of the National Wholesale Druggists Association and is also a member of the National Panel of the American Arbitration Association. One of the founders of the Young President's Organization, he was the first chairman of the YPO executive committee.

In order to clear the way for public sale of securities, it is advisable to consult legal and accounting experts long before approaching the public money market. Restrictive contractual commitments that could interfere with the sale of stock or payment of dividends must be removed or modified. For example, an existing block of preferred stock issued to the original owners could interfere with issuance of new preferred or common stocks. Because of the complexity of many of the legal problems that are bound to arise, it is especially important to pick highly qualified legal counsel who specialize in Securities & Exchange Commission procedures and requirements. It is these attorneys who guide company and underwriters.

Also of paramount importance is the choice of underwriter, another decision that should be made with the advice of an expert. Even with expert outside advice, management will have to do a long and thorough research job on its own. The uninitiated often think that one investment banking house is much like another. Actually, nothing could be further from the truth. For instance, some houses specialize only in large issues and are not geared for small- or-



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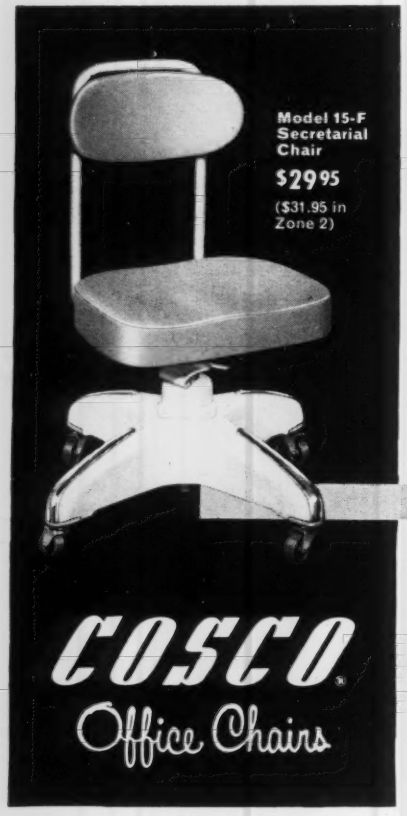

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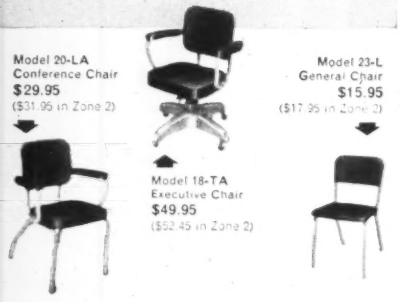

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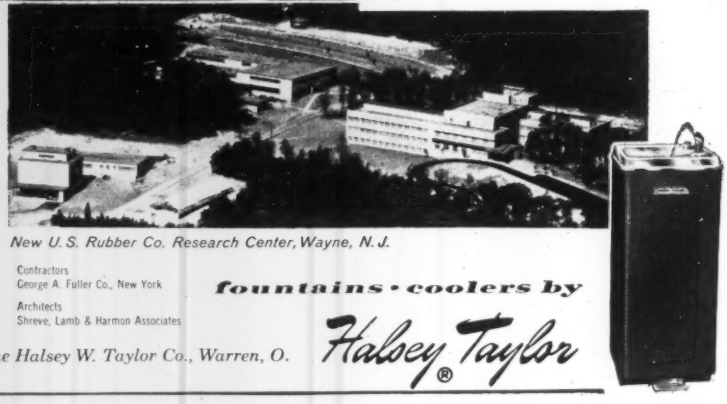

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89

medium-size flotations. Others are qualified to handle issues in specific industries, such as food, paper, chemicals, or electronics. And, of course, some houses will undertake an issue even though they lack investment banking experience and, therefore, reputation. Because experience and reputation are necessary in enlisting support for equity financing, the standing of the underwriters is vital.

Trying to find one's way through this maze without a competent guide can mean the loss of considerable time. Moreover, too much "shopping around" can seriously undermine confidence in an issue when it is finally made. Rumor travels fast in the financial community, and investment bankers may get the idea that the offering is undesirable.

Worth the price

Another mistaken notion is that the underwriter is a necessary evil. It is understandable that a fledgling company would find the costs of underwriting and the demands of the underwriting concern both strenuous and restricting. With the cost of flotation averaging 11.5 per cent for issues between $1 million and $2 million and as high as 22 per cent for flotations smaller than $500,000 (according to the SEC), executives may be tempted to compare public financing unfavorably with the costs of debt financing with which they are familiar. Also, as part of the deal, underwriting companies may ask for a place on the company's board of directors and an option on handling the company's future financing over a specified period.

Though these are conventional requirements, they may at first seem confining. But in return, the right underwriter provides expert counsel and does yeoman work in behalf of the issue far beyond the resources and abilities of the average company. To begin with, the underwriter works with the company's special legal counsel to (1) shepherd the company through SEC qualification of the issue and (2) assist in drafting the prospectus, which is the basic selling tool for the issue.

In addition, the underwriter assists in (1) determining (with executives of the company) the kind of issue and its optimum size as well as the price and yield, (2) lining up other investment houses and its own salesmen to insure quick marketing of the issue, and (3) deciding on the timing of the offering.

But beyond these and other specific services, the underwriting concern should also serve as an integral part of management, adding its experience to the company's. This support can be of immense benefit during the trying weeks and months prior to the offering itself.

In deciding on the size and kind of issue to be offered, the prudent owner-

manager will be largely guided by the recommendations of the underwriter, but he should be prepared to exercise his decision-making prerogative in accord with the needs of his business as well as his own interests. Three considerations should govern his decision: (1) to protect his control, (2) to raise the maximum amount of useful capital, and (3) to attract and sustain investor interest.

Take your choice

Fortunately, possible types of securities are varied enough to accommodate almost any situation. Generally, a company is free to choose an offering of common or preferred stock or convertible debentures.

Common stock offerings are most popular, mainly because common promises an increased return as the company grows. The voting privileges that go with common stock and the sense of corporate participation that goes with voting are also attractions.

The appeal of preferred stock, another alternative, is limited because of the fixed dividend rate and lack of voting rights. Generally, preferred is little used except by large companies.

Convertible debentures combine some of the best features of both common and preferred and are hence popular and well worth considering in special situations. Besides having a fixed interest rate, debentures can be converted to common if the common reaches an attractive price. Security of return coupled with the opportunity for appreciation of the investor's money is the attraction.

The dollar amount of the issue should be determined by the growth needs of the company and the personal needs of the owners. There must be a reasonable expectation that future earnings will make for respectable earnings per share, capable of sustaining the issue at the original offering price and higher.

In deciding when to launch an issue both the state of the market and the condition of the company must be considered. A sharp reversal in the company's fortunes just prior to a public offering could easily wreck the issue, even if the setback is only temporary and not a major change in the company's prospects. Management should work closely with its underwriting concern and give full weight to the judgment of the seasoned people whose job it is to create a market for the stock.

With sound planning and expert counsel, properly qualified enterprises can successfully achieve financing. The benefits are many, not only for individual companies whose strength is replenished and growth encouraged, but for the health of the economy itself.

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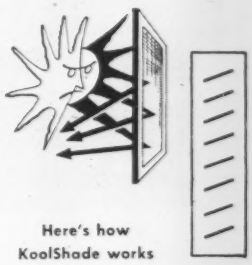

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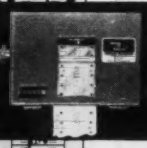

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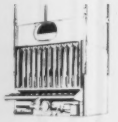

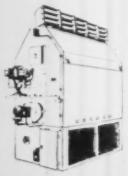

Reznor direct-fired unit heaters offer the modern solution to the problems of heating commercial and industrial buildings. They cost less to install, less to operate and require practically no maintenance. With suspended, duct and free-standing types in all appropriate sizes from 25,000 to 2,000,000 BTU, the Reznor line includes equipment which is exactly right for *your* heating job.

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INDUSTRIAL ULTRASONICS

continued from page 42

cleaning tank, for example, it is possible that the whistle alone, submerged in a tank of water, might provide a more efficient system than electronic ultrasonic cleaners with their multiplicity of expensive transducers.

The simplest of all the mechanical generators are big static whistles operated by compressed air or gas. Since they operate by air, they are particularly effective in applying ultrasound to material suspended in air—to aerosols, for instance. One is known as the "Multiwhistle." The prototype was built in France in 1955 by Dr. Raymond Boucher, who has set up twenty different installations of the whistles in Europe, to precipitate dust in cement plants and other factories that pollute the atmosphere, dry fabrics and films (without heating), and disperse fog.

The whistle, now made in the United States by Gulton Industries, Metuchen, N.J., and costing from $1,500 to $4,500, is not strictly an ultrasonic device. For many processing applications, it works most efficiently in the audible range, but then it must be surrounded by expensive soundproofing.

Dr. Boucher's whistle is not the only possible design. Another Frenchman named Levavasseur has also designed a big static whistle. It is now being imported by Acoustica Associates, Glenwood Landing, N.Y., and other designs will undoubtedly follow.

New and promising

Working by analogy, Dr. J. V. Bouyoucos of the Harvard University Acoustics Research Laboratory has created a potentially important new device for producing ultrasound. In the hydrodynamic analog, as it is called, a flow of oil acts very much like the flow of electricity in the vacuum-tube oscillator. Under high pressure, the oil (the same kind used in hydraulic brakes) is made to produce ultrasound in a special transducer about the size of an electronic transducer of comparable power. But the source of power is a comparatively inexpensive pump rather than an expensive electronic oscillator.

With a top frequency limit of 20,000 cps, the hydrodynamic generator can produce sound waves far down into the audible range, at which it is more efficient and can handle more power. Bouyoucos is considering licensing.

The Germans, who pioneered many of the leading applications for ultrasonic energy, have used it to speed up the aging of wine and whisky. Mack Electronics Division, Inc., Plainfield, N.J., has been studying this application. Although this company has not sold an aging machine, it has installed electronically powered ultrasonic beer foamers in every major brewery in the United States. The $1,600 machine processes up to 600 bottles a minute. A bottle of beer must be foamed just before capping to prevent air from being trapped. Previously, foaming was done manually.

Ultrasonics may also be used to tenderize meat and other foods. The meat is frozen and then treated in a brine-filled tank at 10,000 cycles. Luther G. Simjian, president of Reflectone Corp., Stamford, Conn., has obtained a patent on the technique, which has understandably created a stir among meatpackers.

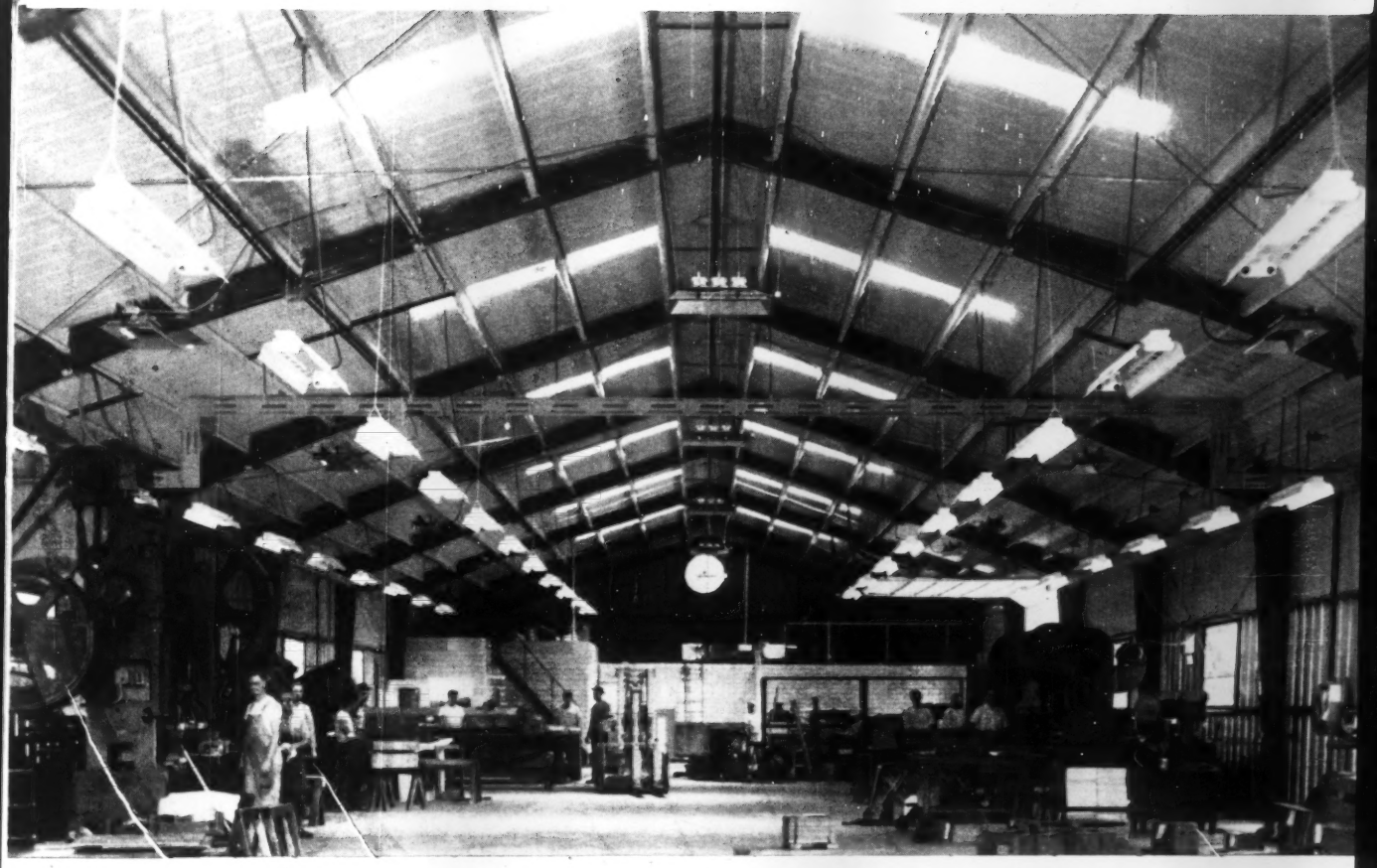
Slow starter

Ultrasonics in fabrication, cutting, or processing of metals has not moved forward so rapidly as ultrasonic cleaning and testing. Opportunities in this area are fewer, and, in general, more operator skill, as well as bigger, costlier machines, is required.

A few years ago hundreds of ultrasonic soldering irons made in England were being sold here. Now sales are down to a trickle. There are several obvious reasons. An ultrasonic soldering iron costs many times as much as a conventional iron, can be used only with two metals—aluminum and magnesium—and still requires a heat source to melt the solder. But in soldering jobs, particularly in sealed assemblies, where the flux used in conventional soldering may cause malfunction of equipment later, ultrasonic soldering, which does not need the flux, has the advantage.

Considerable shop experimentation is necessary to determine the best method of welding any two kinds of metal together ultrasonically. Aeroprojects, Inc., of Westchester, Pa., has been studying this form of welding for about six years, but has only built a dozen machines.

SOLDERING: *The Sonobond iron eliminates the need for flux in this delicate dip soldering operation. However, ultrasonic energy does not eliminate need to heat the solder.*



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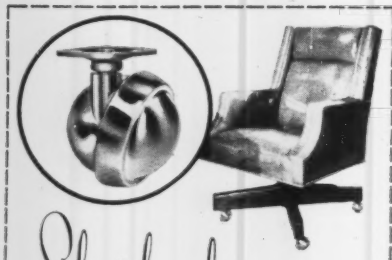

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most of them for study or pilot-plant operations. Actually, ultrasonic welders are only suitable for foil and delicate wires, although they can attach them to thick pieces. Gulton and Alcar Instruments, Little Ferry, N.J., are making special automatic welding machines for classified applications, but have sold very few to industry.

Some of the aluminum companies have also been studying ultrasonic welding. Eventually, ultrasonic welding will probably have a solid place in special situations because it can weld dissimilar metals and does not require heating (with attendant loss of strength).

Managers of plants where difficult materials must be cut into precision shapes are enthusiastic about ultrasonic drills. For instance, at the Bendix transistor plant in Eatontown, N.J., a Sheffield-Cavitron drill has been giving excellent service, says Edward Kolher, division manager. It slices germanium ingots with less waste than non-ultrasonic methods.

Since the ultrasonic drill does not remove metal by turning, the holes and other cuts drilled don't have to be round. Slots, triangular holes, and even more complicated shapes can be cut.

About half a dozen companies make ultrasonic drills. Prices range from under $400 for low-powered bench units to $20,000 for highly precise consoles.

If the gear breaks down

In general, users of industrial ultrasonic equipment are satisfied with the equipment and the service offered when something goes wrong. Few ultrasonic equipment manufacturers have nation-wide service forces, but some have contracted with servicing outfits like Altec Service to maintain their equipment. Others have service people in central locations who can reach broken-down gear in 24 to 48 hours. Less satisfactorily, the rest ask the customer to ship the equipment back for repair or will rush a man out from the factory if the equipment is large.

As volume grows and the inevitable consolidations and mergers are able to support nation-wide service programs, service will undoubtedly improve. In addition, now that the field shows promise of high volume, some industrial giants with well-established service forces are already moving in.

The future of ultrasonics

The technology of ultrasonics is growing so rapidly that predicting its future is difficult. New applications are discovered every week. Often before techniques or equipment can reach full potential, they are superseded by new developments.

Now that the responsible members of the ultrasonic industry, the great majority of the 50 or so manufacturers in the field, have set up an association with a committee to police fair practice, American industry is less likely to be disillusioned and occasionally victimized by the Barnum & Bailey promotional tactics of a few fly-by-nighters. However, no end is yet in sight to all the patent squabbles that will no doubt hamper new development.

Now that industry has had some experience with ultrasonics, it will buy sonic equipment on the same competitive basis that it buys other production equipment. Makers of ultrasonic gear will have to offer service and demonstrate on a production-line basis.

As the ultrasonic industry broadens and grows in volume, few users will build their own equipment. However, most of the industry is still understandably a long way from offering off-the-shelf equipment. Most applications call for custom fitting to the situation.

Before authorizing the purchase of any large-scale installation, manufacturers will make sure that every cheaper, conventional method has been explored. If possible, ultrasonic techniques should be combined with some conventional operation. Then ultrasonics can do only that part of a job that it does best or, perhaps, that it alone can do.

Growing pains are not unusual for a new technology. Nor is it surprising when enthusiastic early prophecies are sometimes realized slowly—the transistor is still a long way from replacing the vacuum tube.

But ultrasonics is coming of age. Industry can soon rely on it as a substantial, mature technology that always offers sound return on investment. END

If ever there was a time for optimism—it's now! Here's what is coming . . .

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7. **More needs** . . . We need *$500 billion* worth of schools, highways, homes, durable equipment. Meeting these needs will create new opportunities for everyone.

Despite the present business dip, the basic reasons for America's growth are stronger and more sure than ever before. Add them up and you have the makings of another big upswing. Wise planners, builders and buyers will act *now* to get ready for it.

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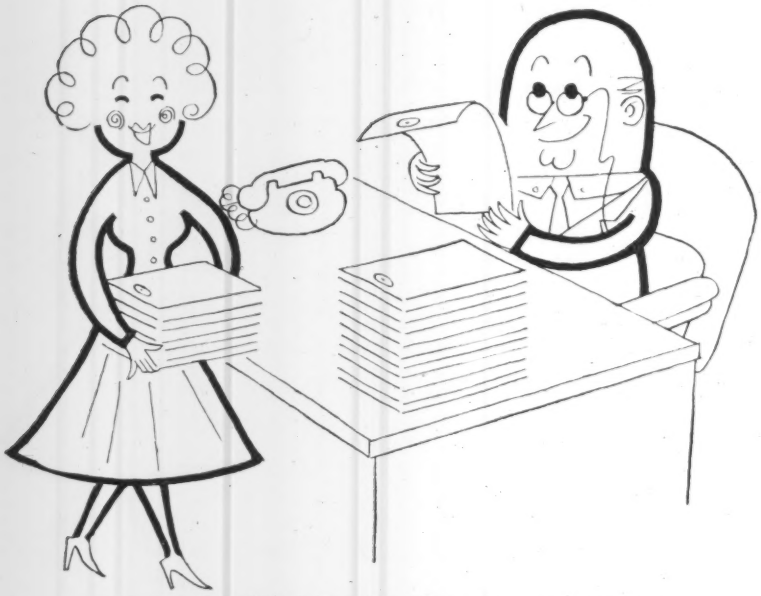

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HOW TO REORGANIZE

continued from page 39

first pin down the facts: What work is being performed, and by whom? What authority is being exercised? What relationships exist?

To find out, maximum participation of the people who do the work is essential, for they are the ones who know. An organization survey can help managers to analyze the work of their departments on a continuing basis and determine for themselves where they can cut and where they should add.

Each manager who participates in the survey should be asked to draw an organization chart, showing his own job and its relationship to other positions. He should also answer a written questionnaire, designed to help him think through what he does, why his job is necessary, and what authority he has to make decisions.

After these data are gathered and correlated as position guides, the differences should be reconciled. Often there is a discrepancy of as much as 40 per cent between what an employee thinks his job and authority are and what his boss thinks they are.

This analysis will show whether those who have responsibility have commensurate authority, whether overlap and duplication exist, and whether the work is properly grouped to meet the company's objectives.

Although it can be made into a complex and lengthy affair, organization analysis is essentially a straightforward procedure and can be fitted into normal administrative activities at nominal additional cost to the company. In the small company, where growth is more likely to be haphazard and where remedies are more clearly identifiable in terms of end results, such a survey is particularly helpful.

Prepare a master plan

Organization changes may be structurally sound and carried out with full recognition of the needs of the company and its personnel, and still fail. The prime reason is that such changes are often in response to temporary pressures. Being short-range, they are usually replaced by some other expedient, also designed to take care of a passing emergency.

The benefits of a proper organization change should be long-range and cumulative. Each move should be a step in a predetermined pattern, part of a master plan.

Developed to enable the company to achieve its economic and social objectives, such a master organization plan is prepared by top management starting, literally, with a clean sheet of paper. It is not predicated on personnel now

available, but on persons *who can be made available* by selection and development of present personnel and recruitment of new. To avoid distorting the plan with existing weaknesses and deficiencies, it should not use the present organization structure as a starting point.

The master organization plan should, when necessary, set a pattern for successful change. Manning, Maxwell & Moore, for example, outgrew its functional, decentralized organization several years ago. The company drew up a master plan of divisionalization and decentralization. A year after the changes were made, sales shot up from $34 million to $46 million. Much of this improvement the company attributes to its successful reorganization.

The master plan should show, in detail, the over-all structure and organization for each major component. It should outline the responsibility, authority, and relationships of personnel on sound organization principles.

Use of a master plan to guide organization changes has many advantages. It can help a company hold down administrative expense, commit capital funds more wisely, and minimize expensive mistakes. For example, a few years ago, a manufacturing company, operating under a functional, centralized organization, built a new headquarters building to house its top management and all functional departments. Within five years, the company had grown so large, it had to decentralize on a product division basis, and separate company and division headquarters groups from plants and operating units. After several makeshift arrangements, the company finally set up headquarters units in a city fifteen miles distant and leased the plant-site office facilities to another concern at a considerable net loss. With a sound master plan, this company could have anticipated these changes and avoided costly mistakes.

The ideal plan provides the basis for long-range personnel recruitment and development and serves as a standard against which to judge the need for and nature of all interim organization changes.

Prepare phase plans

With a survey of the existing organization and a master plan, management is now ready to plot a series of moves that will take the company from where it is to where it wants to be—three or five years from now. This is the process known as phase planning.

Phase plans are interim organization steps, designed to accomplish specified short-term goals and yet keep the company moving consistently toward completion of the master plan.

Carrier Corp. provides an excellent

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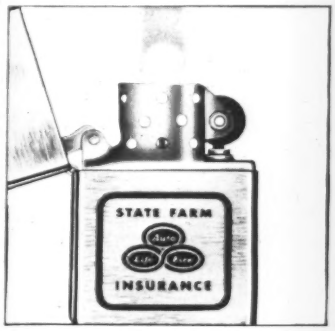

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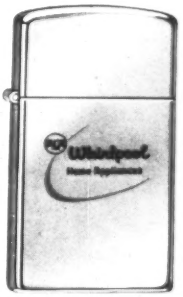

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example of phase planning. Carrier operated with a centralized, functional type of structure until World War II. After the war, sales skyrocketed and the company began to make plans to improve its position by, among other things, expanding into related fields. A master plan of organization was developed that called for the ultimate creation of a fully divisionalized, highly decentralized organization structure.

Obviously this reorganization could not be accomplished at one fell swoop. Proceeding carefully, Carrier developed several phase plans. First an Allied Products Division was organized in 1950 to test the new concept. The engineering, manufacture, and sale of two product lines were turned over to the new division, and it was held accountable for profit and loss. Learning from this move, Carrier later carried out additional phase steps, involving creation of the Machinery and Systems Division and the Unitary Equipment Division and establishment of a corporate staff. Then Carrier phased into this structure several companies that had been acquired to strengthen the company's position in residential air-conditioning and the industrial machinery market.

THE AUTHOR • Louis A. Allen, has had extensive experience in advising companies on management and organization problems. He is president of Louis A. Allen Associates, Palo Alto, Calif. Author of *Management and Organization*, recently published by McGraw-Hill Book Company, Mr. Allen has lectured at New York University and the University of Chicago, and has held management positions with Aluminum Company of America and Koppers Co., Inc.

Naturally, the number of phase plans needed will vary with the company, the extent of the reorganization, and the quantity and quality of the personnel. In many ways, phase planning is a continuous process. As a growing company broadens its market and product horizons, it must also project its objectives and master organization plan into the future. This calls for a continuation of the phasing-in process.

A special advantage of phase planning is that it can make maximum use of the skills and abilities within the company and provide opportunities for progression and advancement to employees with potential. Reorganization should not result in loss of position or pay for those affected and should be closely geared to normal personnel changes. Hence the opportune time to make a major organization change is when key personnel are to be promoted, trans-

ferred, or retired. If personnel problems are anticipated, they can usually be worked out within the master plan.

As a case in point, one small but rapidly growing manufacturing company undertook a first move toward divisionalization and decentralization. In the process, it found that the heads of the functional engineering and production departments were too highly specialized to be entrusted with the general management of the new divisions. But a phase plan provided for two consultants, reporting to the chief operating officer of the company. Both men held these positions until they retired. Both made valuable contributions to the company because of the special skills and experience they possessed and their many outside contacts. After they retired, their positions were abolished, without disturbing the organization.

Overcome resistance to change

The most troublesome aspect of a reorganization program is likely to be getting people to accept it. As Machiavelli put it, "There is nothing more difficult of success, nor more dangerous to handle, than to initiate a new order of things." This is particularly true of reorganization, for each rumor of change is instantly interpreted as a threat to the status and position of those who are affected, whether directly or indirectly. The inevitable result is a deep and positive resistance, either outspoken or hidden. There are four ways to overcome this resistance:

• **Give it time.** A successful reorganization is paced by the ability of the employees involved to understand and accept their new roles and relationships. Changes should proceed gradually. Several years are often required to effect a major changeover. In the case of a reorganization of basic marketing or production patterns, a succession of changes, stretching over many years, may be needed. Even when the major phases are almost completed, the need to modify and adjust continues.

Most companies that do a good job of reorganization count patience as a major factor. General Foods, for example, began a planned divisionalization and decentralization in January 1947. Since that time, the company has undertaken various other changes and modifications designed to improve the basic structure still further. Patience in living with these changes and working them out in terms of operating requirements is vital, General Foods finds.

The Prudential Insurance Company of America established its first decentralized home office in Los Angeles in 1948. It will be the early 1960's before the process of divisionalization and decentralization nears completion. West Penn Power Company began a major

sizing up

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reorganization by divisionalizing in 1942. It took twelve years to accomplish progressive decentralization of authority in the operating units.

• **Provide for participation.** People will accept changes more readily when they understand why the changes are needed. This understanding can be best achieved by giving employees an opportunity to participate in decisions that affect them.

In accomplishing its reorganization, Carrier Corp. made full use of participation on a company-wide basis. Cloud Wampler, president and board chairman of Carrier when the changes were initiated in 1952, first appointed a committee of top officers of the company to engineer the change. This group employed an outside consultant to guide them and assess the plans. The top committee drew up a basic organization program to fit the long-term needs of the company and then presented it to the department heads. The department heads, in turn, were formed into four committees. Each committee met with an adviser from the top group and reviewed and criticized the over-all plan as it applied to their departments. When a master plan was finally evolved, it incorporated the thinking of all accountable managers and received wholehearted support.

• **Communicate.** A corollary to the need for participation, in itself a means of communication, is the need to tell all concerned about changes that are being planned and give them an opportunity to ask questions, make recommendations, and, in general, know what is going on. And "all concerned" is not limited to those within the company, but should also include shareholders, dealers, and the public at large.

Internal announcements should be made as soon as practicable and in as great detail as possible. As a phase of its reorganization, West Penn Power Company told employees about its plans in a series of company-wide meetings. First, P. H. Powers, the president, outlined and explained the over-all plan. Then department heads described the organization of their own departments. Each key official carried the message to the plants, stations, and offices he supervised. Visual aids and other graphic methods were used to get the message across, and employees attending the meetings were given the opportunity to ask questions.

The company magazine or newspaper also provides an excellent medium for announcing and describing organization changes. S. C. Johnson & Son, Inc., makes extensive use of its employee publication, *Jonwax Journal*, and also publishes special reports and announcements to help secure understanding and acceptance of organization changes.

Shareholders should be notified through special reports or in the regular quarterly or annual report.

Dealers are always intensely interested in the changes a company makes because of their possible effect on their relationships with the company's marketing staff. Anticipating this need, Carrier Corp. in 1953 published a special number of its dealer magazine *Inside Carrier*. It printed a full set of organization charts, a complete description of the divisionalization, details of how the change affected the internal operations of the company, and a special section called, "What Does the New Setup at Carrier Mean to Dealers?"

• **Educate.** More than half the problem of creating favorable attitudes toward a reorganization can be solved by educating people for their new work and relationships and developing skills for most effective performance. Most companies rely on classes, courses, and on-the-job instruction. Carrier Corp. recognized that rapid expansion must be accompanied by growth in management and embarked upon an extensive program of training and development, which contributed to the over-all success of the move. Humble Oil & Refining Company devotes sessions to study of the general principles of organization and how they apply to the job situation. Armstrong Cork Company holds conferences on organization for new supervisors and other members of management. The fundamentals of organization are presented, and general discussion is encouraged.

Staffing the organization

Just as management planning must precede effective reorganization, staffing must accompany it. As the organization plan is developed, steps must be taken to appraise and inventory the management talent now available, identify individuals with advancement potential, and provide opportunities for training and development so that the right people will be ready when the prized openings occur. A company should not have to go outside for a large proportion of the people to fill new slots. In fact, the necessity for outside recruitment not only reflects on the company, but also unjustly penalizes the people who have worked long and faithfully in its service and contributed to its success. With foresight and planning, a reorganization can spur the personnel involved to greater productive efforts.

Smooth and painless reorganization is not easy, but if you find that faults in your organizational structure are showing up under the strain of today's tougher competition (see checklist, page 39), a well-planned, long-term overhaul can be an effective way to strengthen your future profits. END

BUSINESS MAN'S GOVERNMENT

continued from page 35

the party of depression, it was also of paramount importance to dispel that rather widely held conviction.

"We will enlist all the resources of the Federal Government to insure that this great nation is never again paralyzed by a great depression," the President promised. The promise itself, committing the Government to a variety of social and economic measures, was indicative of the new Administration's widening economic concepts.

A look at the record

Any party returning to power after a lapse of twenty years would have trouble living up to advance billing. The Eisenhower Administration was no exception. It did not balance the budget overnight. It did not slash Federal expenditures to the level promised. It did not propose any sharply restrictive measures against labor. It did not fight for a reduction, but rather for an expansion, of social welfare programs. It failed in its attempt to shift the public debt into longer-term securities. It did not, as its 1952 platform promised, reallocate fields of taxation between Federal, state, and municipal governments.

Moreover, the Administration never completely rejected the pump-priming theories that had long been anathema to orthodox Republicans. However, it did not rely upon them, as its opponents might have done under similar circumstances, nor has it been so quick as its predecessors to use them. But when time came in the 1953–54 recession to apply expansionist economic policies, it acted promptly. As one leading Republican business executive observed at the time, the country had the best of two worlds, a conservative Administration that inspired confidence and at the same time boldly pursued compensatory fiscal and monetary policies.

The Administration did make changes, important changes. It is often forgotten that under President Truman, John R. Steelman held the same title—Assistant to the President—that Sherman Adams holds today. But Steelman spent most of his time on major labor problems. Adams is almost entirely free of such responsibilities.

The reason for the difference underscores one of the important changes that have taken place. The Truman Administration frequently intervened at the bargaining table to maintain or restore labor peace. The Eisenhower Administration adopted a hands-off attitude from the first. The 1952 Republican platform condemned "seizure of plants and industries to force settlement of labor disputes," and the Eisenhower Republicans have lived up to the pledge

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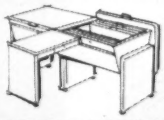
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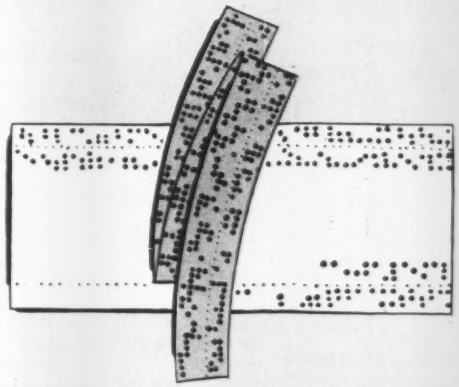

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that the condemnation implied. Wage policies have been left to management and labor, almost certainly to the advantage of both.

True to itself

"Free collective bargaining without Government interference is the cornerstone of the American philosophy of labor-management relations," the President said in 1956.

In fashioning its policy on labor-management relations, the Administration was true to its convictions that wages and prices are matters to be settled in the marketplace, with as few Government restraints as possible.

One of the Administration's first acts was to abolish controls over wages and prices and the use of certain materials. It firmly believes that the free market imposes sufficient restraints of its own in most instances. "Doubtful cases of Government intervention should be resolved in favor of individual freedom," Hauge once explained. "Our guide to policy should be this: as much freedom as possible; as little intervention as necessary."

In fiscal policy, there has been a much greater resistance to spending than some criticisms of the Eisenhower budgets may indicate. The President promised to cut Federal spending to $60 billion—a figure that proved out of reach.

Here is the budgetary record:

Fiscal Year	Receipts	Expenditures	Deficit	Debt*
		(in billions of dollars)		
1953	64.8	74.3	9.4	266.1
1954	64.7	67.8	3.1	271.3
1955	60.4	64.6	4.2	274.4
1956	68.1	66.5	+1.6	272.8
1957	71.0	69.4	+1.6	270.5
1958**	72.4	72.8	0.4	275.0
1959**	74.4	73.9	+0.5	285.0

*National debt at end of year
**Estimated

The 1958 and 1959 estimates that were made in the President's January budget are already officially recognized as far off base. Secretary of the Treasury Robert B. Anderson has predicted a 1958 budget deficit of about $3 billion. Officials outside the Treasury have estimated a 1959 deficit of from $5 billion to $10 billion.

What the figures mean

Only twice has an Eisenhower budget actually been balanced, and the Federal debt is larger now than when Ike took office. However, the increase in the public debt is not substantial. It does not compare with the great increase in private debt in the same period. Viewed in terms of gross national product, the public debt is smaller than at any time since the end of World War II.

Federal expenditures, in terms of total income and population, have also declined. In fiscal 1953, for example, Federal expenditures were 21.3 per cent of GNP. In 1956, they were 17.4 per cent, and in 1957, 16 per cent.

Republicans criticized the previous Administration severely for hindering effective fiscal control by carrying forward large appropriations beyond the year in which they were appropriated. The Eisenhower Administration has fulfilled its promise to reduce the balance of these funds. The total appropriations (in billions) carried forward at the end of the fiscal years were: 1953, $78.4; 1954, $67.8; 1955, $52.1; 1956, $46.0; 1957, $43.7; 1958, $40.1; 1959, $39.9 (1958 and 1959 figures are official estimates).

Hope deferred

Despite the large claims made by some Republican spokesmen on the issue of debt management, the Administration has not been able to live up to its expectations. At the end of the Truman Administration, the average term to maturity of the marketable debt was three years, ten months, compared to six years, three months in 1946.

For a while during 1954 when the Treasury was actively trying to lengthen the maturity period of the debt, the average rose to over four years. Since then it has declined and at times has actually been shorter than when the Eisenhower Administration took office.

"This record indicates a loss in average length of three months during a period of the past four and one-half years, as against a loss of 29 months during the preceding six postwar years," W. Randolph Burgess, the leading proponent of debt extension, told the Senate Finance Committee last year just before retiring as Under Secretary of the Treasury.

Burgess explained that the loss since the Administration took office in January 1953 was less when only publicly held securities were considered, as opposed to those held by the Federal Reserve System.

"The average length, exclusive of Federal Reserve, was four years and one month in June 1957," Burgess said, "as compared with four years and two months in December 1952. In other words, by running very hard we have managed to stand still on that."

The so-called floating debt, which includes under-one-year marketables and other notes and bonds payable on demand, has been reduced by more than $20 billion. "From that point of view," Burgess said, "the job of the debt manager is a lot easier than it was when we took it over."

But the Administration's original objective of putting more of the debt into long-term bonds has not been achieved. As Burgess put it, "We have not always been able to move as fast as we might

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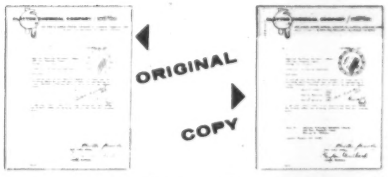

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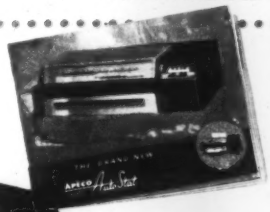

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like toward our long-range objective of achieving a better debt distribution, but we have reduced the floating debt and the bank-held debt and so reduced the inflationary threat the debt carries."

Tax policy, like other Administration policies, also reflects the general aim of moving back to the center of the road. Business has unquestionably benefited from the tax laws adopted, but it has not benefited to the extent many business men expected and many GOP politicians promised.

The $7.4 billion tax cut of 1954 was a milestone—the greatest dollar reduction ever made in one year. Of the total amount, $3 billion represented individual income tax cuts, $2 billion the termination of the excess profits tax, $1 billion the cut in excise taxes, and $1.4

A Business Man's Cabinet?

Shortly after Ike's 1953 inauguration, Democratic cries of outrage greeted Douglas McKay's blithe assertion that "We are in the saddle as an Administration representing business." Yet, though many Republicans winced at his choice of words, the first GOP Secretary of the Interior in twenty years was really saying no more than what had been said time and again during the campaign—namely, that the philosophy of Ike and the men around him was one that business men could confidently and wholeheartedly support.

Certainly in one concrete respect—the number of business men in Cabinet posts—the Eisenhower Administration, more than any other in recent history, has actually deserved the label of "business man's government." The record shows that in the course of his two Administrations, Eisenhower has named eleven business men to his Cabinet—the largest number on record in recent years and a big jump over, for instance, Hoover's three. Paradoxically, those two non-conservatives, Truman and Roosevelt, are closest on his heels with six and eight, respectively. To offset their unequal terms of office, a comparison of the number of business men holding Cabinet posts at any one time shows a total of seven for Eisenhower and five each for Roosevelt and Truman, counting only those who have been active in business over an appreciable period before their appointments.

Here's how the record of Eisenhower's Cabinet appointments shapes up (names of business men are shown in color):

Secretary of State
John Foster Dulles

Secretary of Defense
Charles E. Wilson
Neil H. McElroy

Secretary of Commerce
Sinclair Weeks

Secretary of Labor
Martin P. Durkin
James P. Mitchell

Secretary of Agriculture
Ezra Taft Benson

Secretary of the Treasury
George M. Humphrey
Robert B. Anderson

Postmaster General
Arthur M. Summerfield

Secretary of the Interior
Douglas McKay
Frederick A. Seaton

Secretary of Health, Education and Welfare
Oveta Culp Hobby
Marion B. Folsom

Attorney General
Herbert Brownell
William P. Rogers

Currently, the Cabinet line-up shows seven former business men—two up from the five in the original Cabinet. Of the original five, two—Weeks and Summerfield—have stayed on, and three—former Secretary of the Treasury George M. Humphrey, former Secretary of Defense Charles E. Wilson ("What's good for General Motors is good for the country"), and McKay—have returned to private life. Former Secretary of Health, Education and Welfare Oveta Culp Hobby, whose post was not given Cabinet status until April 1953, has also resigned.

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billion reductions resulting from tax reforms and modifications, including the partial removal of double taxation of dividends.

Was it anti-business?

In connection with tax policy, the Administration decision to restrict drastically the use of fast tax write-offs had a pronounced effect on business and on the scope of business investment. Here again the Administration opposed the fast write-offs, which were substantial aids to businesses that could qualify to receive them, on the ground that artificial stimulants could become artificial controls. Former Secretary of the Treasury George M. Humphrey said that since rapid amortization was not applied to all business, it was creating a competitive imbalance and was not "the American way."

Between 1950 and 1957, about 22,000 certificates were issued under the five-year amortization program. The total cost of the projects involved was almost $39 billion.

The 1954 revision of the tax laws gave business greater latitude in selecting methods of depreciation and allowed a more rapid write-off of the tax basis of the property. The change helped new investment financing (though not enough, in the eyes of some executives) at a time when the end was near for widespread use of fast tax write-offs.

The Administration is particularly proud of the progress it has made in reducing Federal commercial-type activities that compete with private business. Some 500 projects have been discontinued or curtailed. The Defense Department alone has eliminated nearly 400 of its commercial-type activities, including office equipment repair shops, automobile repair shops, tree and garden nurseries, bakeries, cement-mixing plants, and coffee-roasting plants. Also, fifteen ice cream plants have been closed.

The depression-born Reconstruction Finance Corp. has been liquidated. The sale to private industry of such Government-operated ventures as synthetic rubber plants, the Inland Waterways Corp., the PWA-built Bluebeard's Castle in the Virgin Islands, and the Island Trading Corp. in Guam have brought in more than $1 billion to the Treasury.

As of the first of this year, 383 (77 per cent) of the 497 separate recommendations of the Hoover Commission had been accepted wholly or with minor modifications, and a total of 291 (59 per cent) had been implemented or were in process of implementation. Fifty recommendations have won Administration backing, but cannot be put into effect without Congressional approval. One of the major Hoover Commission proposals, of course, is elimination of the Government's industrial and commercial activities that compete with private enterprise.

If Administration activities in the farm field come under the heading of business (and they have a direct bearing on business as well as on tax policy), the record must be put down as a failure. Partisans may argue where the blame lies. But this Administration has resorted to what Secretary of Agriculture Ezra Taft Benson himself has called the two most expensive farm programs in history. One was the now-rejected soil bank, and the other was the disposal of surpluses abroad.

Costly farming

Here is a rundown of the cost (in billions) to the taxpayer of agriculture and agriculture resource programs by fiscal year: 1950, $2.8; 1951, $0.7; 1952, $1.0; 1953, $2.9; 1954, $2.6; 1955, $4.4; 1956, $4.9; 1957, $4.6; 1958, $5.0; 1959, $4.6 (1958 and 1959 figures are official estimates). Certain forest programs and other resource development programs carried on through the Agriculture Department are not included in these totals.

The Administration has repeatedly asked Congress to permit greater flexibility in fixing price support programs and in reducing acreage restrictions. It has, in effect, urged the free market. Yet because of farm bloc pressures and declining farm income, it has resorted to income-boosting measures like the soil bank program and surplus disposal abroad.

Despite the efforts made through the soil bank to cut production and through the disposal program to get rid of stocks on hand, the Commodity Credit Corp.'s total investment in farm commodities at the beginning of this year was $7.2 billion—more than $1 billion less than the high point of two or three years ago, but nearly $1 billion more than last year's low.

As in the case of agriculture, the Administration's record on the regulatory agencies is unclear. Business men are dissatisfied with many of these agencies. Administration officials say that anti-business forces no longer dominate any of the regulatory bodies.

"We don't have forces hostile to business on the regulatory agencies, and we don't have forces hostile to labor on the National Labor Relations Board," one official explains. "We seek men who will represent the public interest without being opposed to the groups they regulate."

Some lawyers practicing before the agencies have been as critical of the Eisenhower agencies as of their predecessors. "There is so much effort made to avoid being called pro-business that the opposite has in fact been achieved,"

one executive of a regulated business said. The airlines have repeatedly accused the Civil Aeronautics Board of failing to grant needed fare increases. They have also complained that the Administration has permitted excessive competition from foreign carriers touching these shores.

Similarly, the railroads, confident at first that they would win sympathetic treatment from the Administration, have been disappointed in the results. While the Cabinet committee on transportation proposed significant relief, it did so without a proper appreciation of the public and Congressional reaction. As a result, nothing was accomplished. A watered-down proposal has been resubmitted this year. But the railroads, now in much worse condition, have called it inadequate, and have appealed directly to Congress for relief.

The Congressional hearings on the Federal Communications Commission disclosed practices embarrassing to the White House and did nothing to restore business confidence in the integrity of the Commission's decisions.

THE AUTHOR • An authority on the Washington scene, Carroll Kilpatrick has covered political and economic affairs in the capital for 18 years. Now on the staff of the *Washington Post*, he was formerly Washington correspondent for the *Birmingham News*. Mr. Kilpatrick has also contributed many articles on political and economic subjects to such magazines as *Harper's*, *Atlantic Monthly*, *Collier's*, and *Nation's Business*. A native of Alabama, Mr. Kilpatrick was graduated from the University and later received a Nieman fellowship for graduate study at Harvard University.

A big stick

To the surprise of many persons, the Administration has, on the whole, pursued a vigorous antitrust policy. In some years, the number of cases prosecuted has greatly exceeded that during Democratic administrations. Some very large concerns, such as Du Pont and RCA, have been brought into court. There have been fewer accusations of favoritism than in some years past. Immediately after taking office, the Republican Administration established a study commission, which examined the antitrust laws and practices and recommended firm administration. Business was well represented on the study group, and its report is the basis of the Justice Department's approach to antitrust policies.

On tariff issues, the President, who has often made it clear that he regards foreign affairs as his most important

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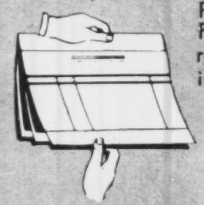

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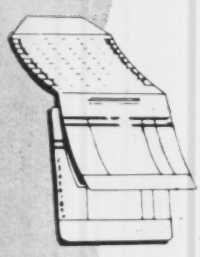

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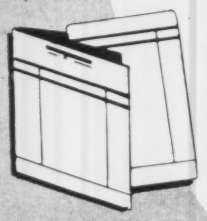

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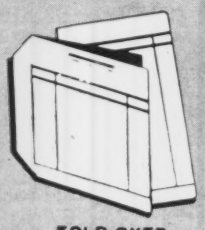

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area of operation, has reversed historic Republican policies. He has not opposed all tariffs, of course, but he has pushed freer trade. In this field, as in others, he has sought the middle ground, but at the same time he has steadily advanced in a chosen direction. Because he has occasionally compromised with protectionists, critics have said he lacks firmness. He would no doubt reply that he has compromised only to stay on his forward course.

When the House Ways and Means Committee this year began hearings on the President's proposal to extend the Reciprocal Trade Agreements Act for five years, Secretary of Commerce Sinclair Weeks opened the argument for the Administration. He explained that he was not a "free trader" or a "hard-shell protectionist." Rather, he said, he was a "moderate." He asked the Committee to exercise "a little give and take" in considering the President's request. Opposition to the President's foreign trade program has grown with the recession and made it necessary for him to compromise to win support for it.

Put to the test

The current recession, the second since the President took office, is a major threat to the success of his Administration and to the moderate policies he has enunciated. He has been under pressure from the opposition to take more aggressive Governmental measures to prime the pump, in the form of either tax cuts or an increase in spending for public works.

Both the President's reluctance to move fast and Democratic insistence on prompt measures are characteristic. Eisenhower argues that Government is not the only factor, and he lays stress on the importance of business confidence. If the proper environment is created by the Administration, the private sector will then provide an important stimulus to recovery, he insists.

More than a year ago, when the boom was still strong, the President said at a news conference that he had often been asked what he would do if a real depression threatened.

"There is no such thing in prospect at this time," he said. "Frankly, I don't believe that one of the character of the twenties can ever occur."

He went on to say that the reforms of the thirties, like social security and unemployment insurance, were a strong defense against a repetition of the period when people were "selling apples and walking the streets." But he said that if a serious depression seemed in the offing, "there would be no limit" to what his Administration would do.

"I would do everything that was constitutional and that the Federal Government could do," he added.

Those words are a good measure of the President's thinking and the Administration's determination to act when and as it believes necessary. In the initial stages of this downturn, the Administration relied heavily on credit policy. Then it began a modest public works program.

In his Economic Report early this year, President Eisenhower warned that unwise price and wage policies in 1958 could stand in the way of recovery. Labor leaders ought to realize, he said, that wage increases without a rise in productivity "are inconsistent with stable prices" and can slow the resumption of economic growth. And price increases that are "unwarranted by costs, or that attempt to recapture investment outlays too quickly, not only lower the buying power of the dollar, but also may be self-defeating by causing a restriction of markets, lower output, and a narrowing of the return on capital investment." Business leaders should realize this, the President said.

A question of timing

These warnings to business and labor from a President who has attempted to stand apart from the wage-price mechanisms emphasized not only his concern over the rising cost trend but also his hope that capital and labor would take steps to make Government disciplinary or corrective action unnecessary.

In a recent address that threw much light on the Administration's attitude toward its economic role, Dr. Arthur F. Burns, a former chairman of the President's Council of Economic Advisers, said that only a generation ago "men concerned with economic affairs typically held the view that it was best to allow storms of business depression to blow themselves out." They opposed intervention by Government.

Now, as Dr. Burns said, no government "would tolerate the destruction of one-third of the nation's money supply during a period of depressed economic activity and prices. Yet that is precisely what happened between the Fall of 1929 and the Spring of 1933."

The Administration's general attitude toward the problems of recession is clear enough. Now it is confronted with problems of judgment in the timing and application of anti-recessionary measures. A misstep could be exceedingly damaging, not only to the course of business but to the future of the economic policies the Administration advocates. Indeed, the present recession is the most important business issue that has confronted President Eisenhower in his five and a half years in office. Success in dealing with it is crucial to his middle-of-the-road policies. Failure would doom these policies for many years to come. END

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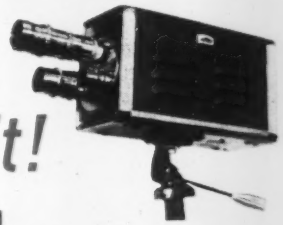

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Copper base alloy rod is examined by a trained operator with the aid of an ultrasonic reflectoscope. Through electronic circuitry, ultrasonic echoes are translated on a cathode ray tube. Any internal flaws are readily apparent. Both rod and tube are tested by this method, which is just one of many Positive Quality Control checks used by the Mueller Brass Co.

Through ultrasonics, the immerscope (Left) locates internal defects, and has exceptional versatility for examining intricately shaped parts, such as the forging being checked in this photo. When testing, a transducer, located at the bottom end of the search tube, is electronically actuated to produce from 2.2 to 25 million cycles per second. Ultrasonic echoes are reflected back to the transducer from the material, indicating any defects that may be present. Limits may be pre-established and the sound findings are visually recorded on the cathode tube. This is another instance of Positive Quality Control in action.

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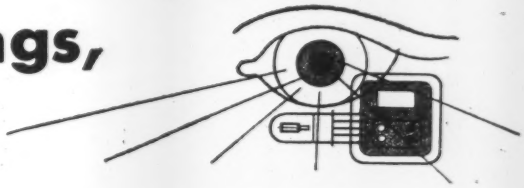
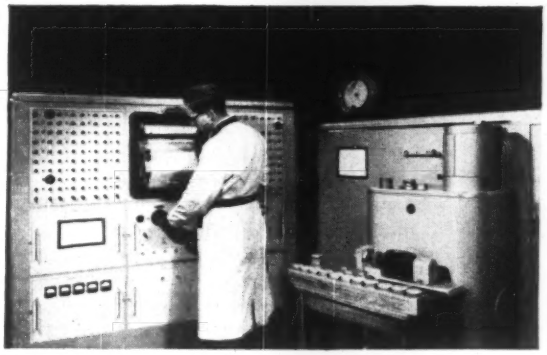
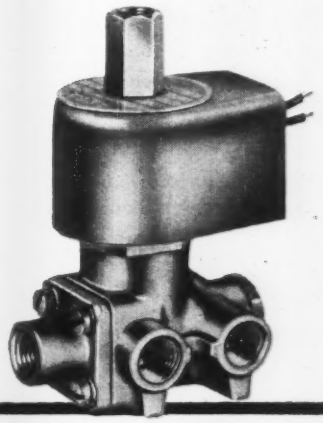
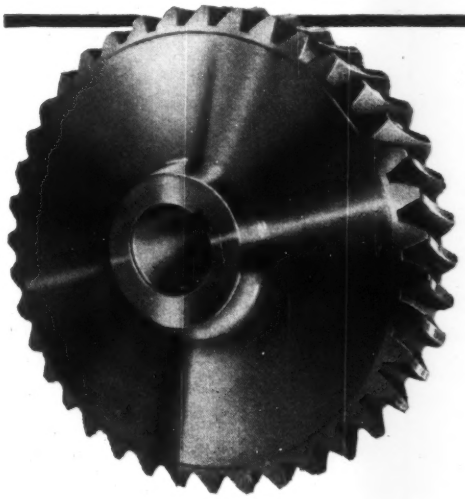




The direct reading spectrometer (Left) makes it possible to accurately analyze an alloy for chemical composition within 90 seconds while the metal is in the molten stage. A sample specimen is poured, cooled and sent to the laboratory, where it is placed in the spectrometer. Through the diffraction gratings in the machine, the "spectrum" analysis of the alloy records its exact chemical composition. With this equipment, alloy specifications are matched exactly, thus insuring a better finished product through Positive Quality Control.

THIS MIDGET 4-WAY SOLENOID VALVE (Right) is one of a complete line designed and manufactured by the Automatic Switch Co. (ASCO) of Florham Park, New Jersey. Valves of this type are used for controlling small double acting cylinders which operate valves, dampers and many types of automatically controlled equipment. One of the most important components in these valves is the non-porous brass body forged by the Mueller Brass Co. who also perform all the major machining operations so that the body is ready for use upon delivery. The forged brass body insures freedom from porosity and reduces possibility of corrosion. The Mueller Brass Co. Positive Quality Control program insures ASCO complete "product protection". . . and eliminates chance of "in-service" failures.





THIS LARGE 18" FORGED GEAR, along with two others of the same type, is used in a steam turbine installed in a power generation facility of the Wisconsin Electric Power Company, at Port Washington, Wisconsin. The gear was forged in open dies by the Mueller Brass Co. from tough, long-wearing 603 alloy. The gear operates at 25-30 RPM and is turned by the turbine, which has a capacity of 80,000 kilowatts. Strength and dependability are of utmost importance in applications like this, and in such cases Positive Quality Control insures peak performance.

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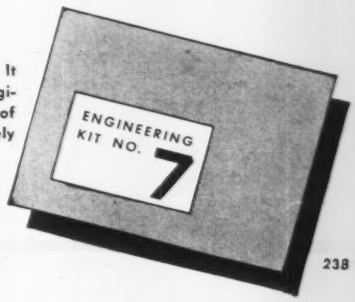

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Coming: New Sources of Power

As industry's kilowatt consumption soars, technology is readying new sources of energy to fill future needs, perhaps cut costs as well.

DRAMATIC ADVANCES, announced early this year, toward commercially applicable H-bomb power give promise of an inexhaustible supply of energy to turn the wheels of industry. If, as seems likely, the power of thermonuclear fusion can be harnessed for peaceful uses, mankind need never again worry about what will happen when the world's coal, oil, and present atomic fuels have been used up. There will be, as one scientist put it, "power for a billion years."

Present atomic-energy plants produce power by splitting atoms. They use uranium and thorium, of which the earth's crust contains a large but limited amount. In the fusion reaction, two deuterium atoms are fused together. Deuterium, or heavy hydrogen, is found in sea water and is plentiful enough to last practically forever.

But this is promise only. While controlled fusion has been reportedly achieved in the laboratory, enormously more power is needed to produce it than the reaction generates. E. W. Herold, associate project manager of a group of RCA and Allis-Chalmers engineering specialists who are designing and building a thermonuclear fusion research laboratory for Princeton University and the Atomic Energy Commission, estimates that five to ten more years of laboratory work will be needed, and that actual utilization of the power is "several decades away."

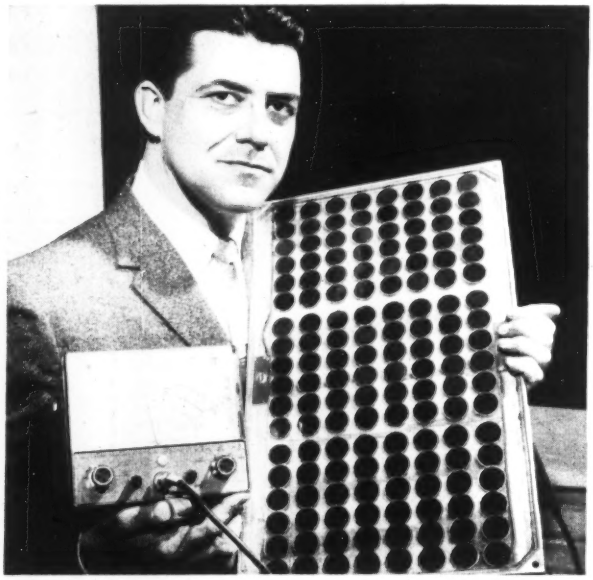
In the meantime, production of coal and oil will become more expensive as the more accessible deposits are used up. As a result, fuel costs will rise substantially.

In 1952, the Paley Commission reported: "If we are to avoid the risk of seriously increased real-unit costs of energy in the United States, then new low-cost sources should be made ready to pick up some of the load by 1975."

The picture has not materially changed since then, even though the first atomic energy plants for the production of commercial power have gone into operation, and others will go on the line in the next few years. The Edison Electric Institute, an association of public utilities, some of which have themselves entered the atomic energy field, reported this Spring: "No reactor is known which can be guaranteed to produce electrical power at any location in the United States at a cost equal to the cost of power using conventional fuels."

Will we face "seriously increased" power costs within ten or twenty years? What are the other possibilities, and how near are they to becoming realities? A number of others were recently pointed out in a report by the Department of Economic and Social Affairs of the United Nations: solar energy, wind energy, tidal energy, geothermic energy, and the thermal energy of the seas. With the exception of the thermal energy of

SOLAR HEAT: *The large glass area above is part of a solar collector that helps to heat the first solar house in a northern climate. The house was constructed in Lexington, Mass., by M.I.T.*



SOLAR POWER: *This solar energy unit supplies five watts to a six-volt battery system. Developed by Hoffman Electronics Corp., Evanston, Ill., it is expected to function for years without care.*

A year ago this picture would have had to be faked

Until recently, nobody knew how to make thin Stainless Steel sheets as wide as the one you see here. But aircraft manufacturers needed a sheet like this, so United States Steel found a way to do the job. A standard-size sheet of Stainless Steel is inserted between two heavy carbon steel plates and the plates are welded shut around the edges. This steel sandwich is then heated and rolled, widening the Stainless sheet inside. A Stainless sheet as wide as 120 inches can be produced to exceedingly close tolerances with this ingenious method . . . one more way that United States Steel's versatile facilities develop better steels for better products.

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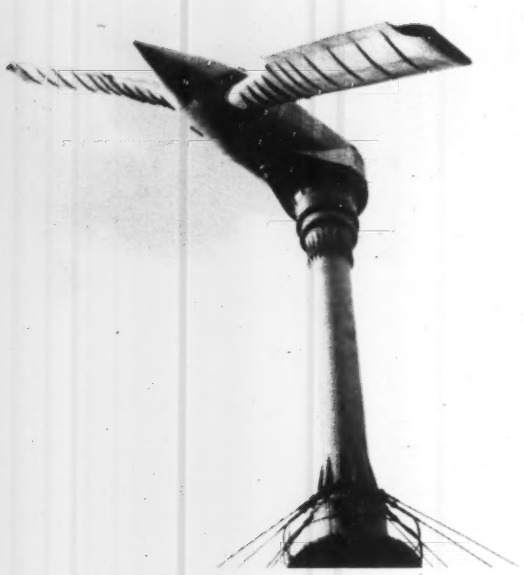
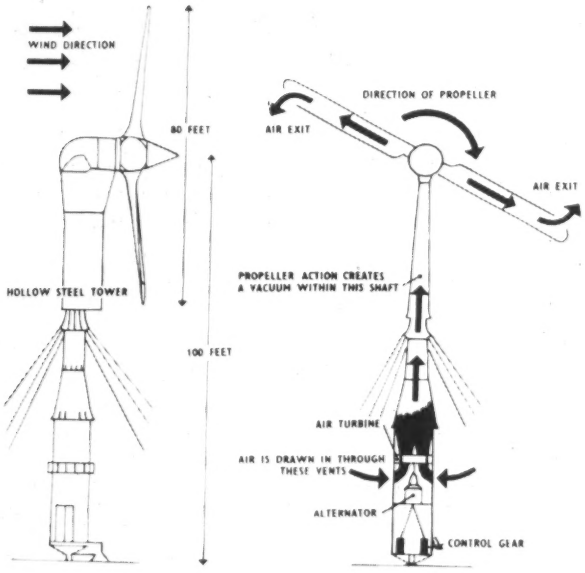




WIND POWER: *Above, left, 80-foot, hollow, wind-propelled rotors suck up air through a hollow shaft, driving a turbine that generates electricity. On the right, drawings show how the experimental windmill works. The new generator was developed by the British Electricity Authority and the first installation was set up in Hertfordshire, by Enfield Cables Ltd. of London.*

the seas, all of these are in actual although limited use in some parts of the world at present. And with the possible exception of geothermic energy, all are practically inexhaustible energy sources.

For 13 million homes?

Most promising for the United States is solar energy, which the Paley Commission estimated might be used to heat some 13 million houses in the United States, and thus take some of the load off other power sources.

Recently engineers and architects from the Massachusetts Institute of Technology demonstrated that solar heating is practical technologically, if not yet economically, even in cold New England. This Spring they completed a two-story, three-bedroom house at Lexington, Mass., which will derive 75 to 80 per cent of its heating from solar energy; the remainder will come from a small auxiliary oil burner.

Solar energy is trapped by two sheets of 640-square-foot glass over a sheet of thin aluminum, painted black. The glass lets the sunshine in but keeps the longer waves of heat energy from passing back out again. The aluminum sheet absorbs the heat. Water is circulated through copper tubes attached to the sheet and stored in a 1,500-gallon basement tank. By means of a heat exchanger, the heat from the water is transferred to a stream of air, which then goes into the heating registers.

Professor Lawrence B. Anderson, chairman of the space-heating committee of the M.I.T. Solar Energy Conversion Project, estimates that the cost of the heating plant was perhaps six times that of the conventional type, which makes it economically unfeasible at present. "But," he adds, "if it had cost only twice as much as the conventional system, it would have been economically competitive considering the capitalized cost of annual fuel savings." (Mass production would help here. The Lexington solar energy collector was handmade.)

In the sunny Southwest, where a few buildings heated by solar energy are already in use, the Association for Applied Solar Energy this Spring officially opened a $50,000 house in which the solar heating (and Summer cooling) system may well earn its way. The collector, which uses aluminum-clad panels, cost $4,000 more to install than a conventional heating and cooling system, but estimates indicate that it will save $550 a year in fuel costs.

In addition to heating the house in Summer and cooling it in Winter, the system will supply hot water the year around and heat the water in a swimming pool.

U.S. industry is already using small solar furnaces for generating high temperatures for use in research.

The Army is at present building what it describes as a "giant-size" solar furnace capable of producing temperatures comparable to those generated by an atomic explosion for use in testing materials.

At the Institute of Radio Engineers National Convention in March, Hoffman Electronics Corp. exhibited a commercially available solar energy unit for telephone and telegraph communication. Solar stoves, solar hot water heaters, and solar clocks are also commercially available.

Back to the windmill?

Wind energy has, of course, been used for centuries in the form of the old-fashioned windmill, which converts windpower into mechanical power. Modern developments convert it into electrical power, which, of course, is usable at a distance from the mill itself and can be stored for later use. Electric-power windmills are in commercial production in a number of countries, including the United States. In Russia and Germany they are used for supplying electricity to isolated communities.

Heat from the ground

Geothermic energy—from the natural steam or hot water in hot springs and volcanic holes—is limited to certain naturally endowed regions. But it is already in large-scale use in Italy and Iceland, and a 37,500-kilowatt plant is reported to be under construction in New Zealand. Japan and Central and South America also have promising sites. Russia,

with 63 active volcanoes, began preliminary studies in 1955.

In the United States, the most obvious possibilities are the geysers in Yellowstone National Park, which produce the equivalent of 1,000 tons of saturated steam per hour. Other possible sites are in California, where one 100,000-kilowatt station is already planned, and Alaska, which possesses underground reserves of superheated steam.

The energy of the tide is, of course, immense, particularly at certain places —many in France and Britain, a few in the rest of the world. The French Assembly has approved the building of the world's first tidal power station on the Rance estuary. It is expected to produce about 800 million kilowatt-hours annually. Already under construction, the Rance power station is scheduled for completion in 1965.

On the North American continent, the Bay of Fundy has the highest tides in the world. In the 1930's, the United States attempted to tap some of that power through the Passamaquoddy project on nearby Cobscook Bay, but the work was abandoned. Studies of the possibilities in this region have continued off and on, however.

Thermal energy of the seas

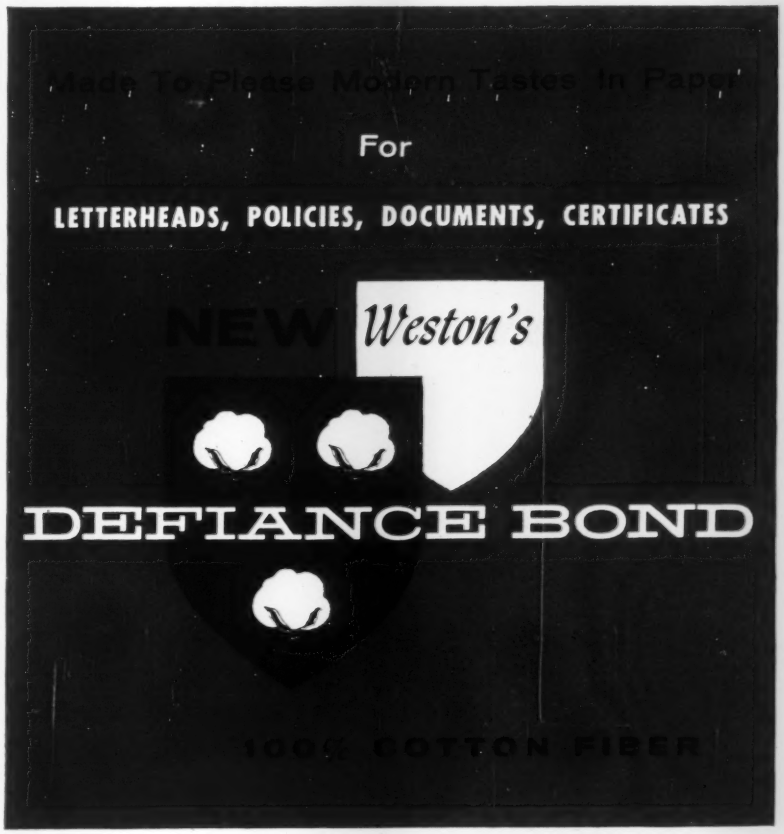
The possibility of tapping another unlimited source of power in the seas rests on the fact that energy can be derived from two masses of water at different temperatures, even if the "hot" source is actually more cool than warm.

During 1955 and 1956, detailed designs were made for a plant on the Ivory Coast, at Abidjan, by the Société Energie des Mers, working in cooperation with the French government. Though this project has now been dropped, work on tapping the thermal energy of the seas is still going forward, particularly since the possibilities include the extraction of fresh water as well as power from salt water.

With the exception of solar energy, the unconventional sources of power will, for the time being, probably find greater use in undeveloped countries than in the United States, where comparatively cheap power is available almost everywhere from fossil fuels or waterpower.

Developments will be watched closely here, however, since even our reserves are by no means inexhaustible and the demands are mounting year by year. In 1945, U.S. industry used 11,000 kilowatt-hours of electricity per worker; in 1957, the figure was 20,000.

—ALICE SMITH



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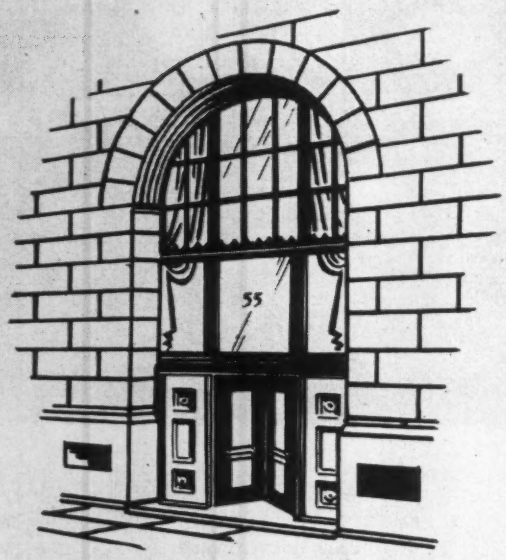

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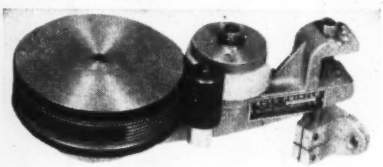

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OUTSIDE INVENTIONS

continued from page 44

ing pillar), and the inventor sued not only for infringement of patent but for violation of confidential disclosure. GM had to pay.

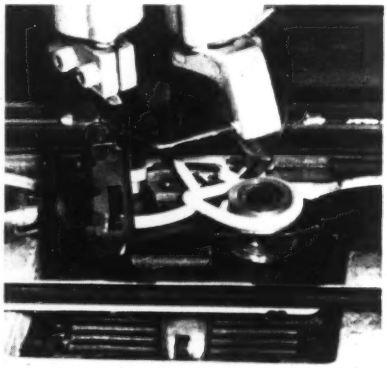
The inventor won his case on these grounds:

- The company could not prove that it had had the idea before the outside inventor suggested it, and the burden of proof was squarely on the company. Oral testimony by GM employees to this effect was not considered sufficient evidence.
- Confidential agreement was implied from the circumstances of the disclosure, plus the plaintiff's evident desire for compensation.

Many well-managed companies, however, have developed procedures that minimize the risks of suit and at the same time keep the channels of communication with outside inventors open. In general, the procedures embody the following provisions:

- Personnel likely to receive the disclosures are instructed to send them immediately to one executive, who is an administrator rather than a technician or an engineer. So far as possible, 'inventors' letters are systematically kept away from the technical and engineering personnel until—
- The inventor signs an agreement specifying the conditions under which the company will consider his idea.

AMF's agreement conditions, shown on page 162, make it clear that the disclosure is not confidential. Also, the disclosure must be in writing so that the scope of the invention is defined. This forestalls later claims by the inventor that he also suggested other ideas eventually developed by the company on its own. Finally, the company



HOW TO TIE A PRETZEL: *Once a tedious hand job, pretzel-tying is now automatic with AMF device invented by E. W. Curtis.*

THE AUTHOR • As vice president in charge of patents at American Machine & Foundry Company, George S. Hastings writes with the knowledge and authority of long experience in handling the legal and technical aspects of acquiring inventions. Mr. Hastings joined the staff of AMF's patent department in 1928 after serving for five years as a lawyer with the U.S. Patent Office and as a physicist with the Bureau of Standards. A graduate of George Washington University, he received the University's "Achievement Award" in 1957.

states that it does not propose to pay merely for the privilege of examining the idea. (As a public relations measure, the reasons for these provisions are explained on the form itself.)

The inventor is also protected. He is advised to apply for a patent or, at least, to have his drawings signed, dated, and witnessed. And if the company makes no agreement to pay him, he resigns none of the rights to his invention to the company. If the company does decide to accept his idea, payments are negotiated later.

Once the inventor has signed the agreement, the company can proceed to evaluate his idea. The first step must be a quick screening to dispose of ideas that can be rejected for obvious reasons—for example, because there is no market for them or they apply to a field the company does not wish to enter or they infringe on other patents. This first sifting can be done by someone in the new products or commercial research department.

There is the risk, of course, that valuable ideas will be lost in this first rapid-fire screening, but without it, the whole procedure would bog down for lack of time. About nineteen out of twenty proposals are rejected at this stage.

If the product survives the initial test and appears to be worth further study, AMF often negotiates an option agreement, setting forth the terms on which it would acquire production rights. Some of the suggestions may be eliminated right here because the inventors want more for them than they are worth to the company. But if satisfactory arrangements can be agreed upon, further study is undertaken, including:

- An engineering study to determine the technical feasibility of the product. Can it be made commercially satisfactory without undue complication or cost? Not long ago, for example, we were offered a grave-digging machine that appeared at first glance to have possibilities. It worked and worked well, except for one complication: as the inventor had designed it, it would have knocked down all the gravestones in the vicinity and thus would probably have been barred from cemeteries.
- Consideration of patent feasibility. Is the invention patentable and free from infringement on other patents?
- Determination of marketing pros-

IS IT A GOOD INVESTMENT?

Here is one method that AMF uses to figure whether an invention is worth going on with. By applying the formula given below to the approximate figures for one of the company's successful similar products, a useful basis for comparison with the prospective product is developed. This gives the company a rough quantitative measure of the new idea's prospective payoff.

Here is the formula:

$$\text{Average annual return on average investment} = \frac{\text{Total of after-tax receipts during life} - \text{Total investment} \times \text{Time-value of money}}{\text{Half total investment} \times \text{Life}}$$

Here is how it worked when applied to a typical AMF product:

$$16.1 = \frac{.50\,[(7500\text{-}4500) \times 200 \times 20 - 1{,}000{,}000] \times .322}{\frac{1}{2}\,(400{,}000 + 300{,}000 + 300{,}000) \times 20}$$

(a) (b) (c) (d) (e) (f) (g) (h) (i) (j) (k) (l)

(a) average annual return after taxes on average investment; (b) tax rate; (c) selling price; (d) all costs not capitalized, including selling, continuing R&D, G&A, and so on; (e) annual volume; (f) life; (g) total capitalized investment; (h) time-value of money at 15%, average of all yearly discounts because future money is of less value than present money; (i) original R&D, patent, and pre-production costs; (j) initial tooling; (k) other investment: capitalized items such as major redesigns and retooling; (l) life of investment. NOTE: *This formula has the virtue of being relatively simple to apply, but is only accurate if average annual sales can be estimated. Where annual sales vary greatly, a more accurate method is a year-by-year discount system.*

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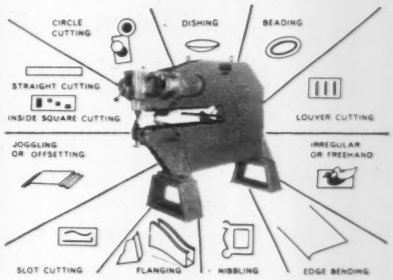

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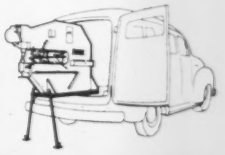

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pects. Here we get as many figures on the market potential and as many consumer reactions as possible. Then we consider whether the price will be too high or the volume too low.

- Analysis of the relationship of the product to the company's business. A good way to do this is to line up a list of the company's facilities for manufacture and sales against the requirements of the product.
- Consideration of the degree of completion. How far along the scale from conception to full development and commercialization is the product (see table, page 44)? The further away the product is from production and sales, the greater the risk and the costs.

Finally, the company should consider whether it is being asked to do a pioneering job in an uncharted field. If it is, all development cost estimates must be doubled or tripled. Even if the field is an attractive one, the way of the pioneer is likely to be hard.

If the invention passes all these tests, there is still another hurdle. The key question is: What return can we expect on the investment? Since a company considering the acquisition of a going manufacturing business might ask that it bring in a return of 10 to 15 per cent after taxes, the average annual projected return on an entirely new product—which, in effect, entails the risk of starting a new business from scratch—should be higher.

To a large extent, projected sales and costs will be a matter of judgment, but even so it is helpful to use a formula. A comparison of results from new products brought out in the past can be made, and all the figures bearing on profitability considered. The box on page 161 shows one formula and how it applies to a successful AMF product.

It should be emphasized, however, that in the first evaluation the formula should probably yield a higher figure than the actual one (16 per cent in the example) if the new product is to be undertaken. Many of the figures used will be estimates, and there is no certainty that sales and costs will work out as expected.

In general, it may be taken for granted that the inventor will tend to put too high a value on his invention, and the less developed the invention is, the higher will be his over-valuation, since he will have less knowledge of the products limitations.

The company negotiator, therefore, will need the facts revealed by the application of the formula given here. Where significant figures cannot be ascertained with any degree of accuracy, allowance must be made for the possibility that the missing figures may not be favorable, and this should be explained to the inventor.

The inventor, after all, must be paid from the profits of the business, and his payments are a deduction from the company profits. Since only an extra-good manufacturing business yields more than 15 per cent on sales before taxes, a 5 per cent royalty means that the inventor is getting one-third of the pre-tax income of an extra-good business and half that of an average business. Thus 5 per cent is probably about the top royalty that should be offered for an exceptionally profitable invention developed to the going business stage, or almost to that point.

A bonus from the discussions, incidentally, may be finding unusually creative persons whom the company may wish to have on its staff. The acquisition of a few such men can, as illustrated by the experience of General Motors with Kettering and General Electric with Steinmetz, make a vast difference in the company's future.

If outside inventions can, on occasion, be so profitable, should a company go out of its way to solicit them rather than leave the initiative to the inventors themselves? It might seem on the face of it that a company should do exactly that, but the consensus, even among companies that make a practice of considering unsolicited ideas, is that solicitation is not advisable. The net result, experience has shown, is many more ideas for screening but no corresponding increase in good ones. END

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While this Company is anxious to take every opportunity to improve its products and add profitable ones to its line, it has found certain precautions necessary in accepting disclosures. For example, its employees have varied and numerous ideas of their own, worked out in the past, or now being worked out, for the purpose of improving or adding to its many lines of products. Some of these ideas might, by chance, be similar to your own. Hence, in order to avoid any possible future confusion between your ideas and its own, and to prevent any misunderstanding as to what the rights and obligations of the inventor and the Company are, the Company's policies as to considering inventions are set forth below:

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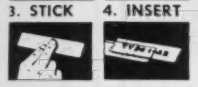

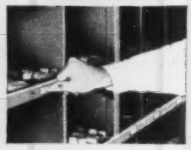

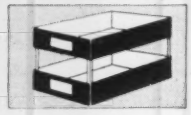

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The Reviewing Stand

• Some businesses thrive on adversity. As the risk increases so does the opportunity. Ken Henry, our Executive Methods Editor, has put a pointed and provocative query to top management leaders and comes up with an article for July entitled "How to Fight a Recession." One answer implies both threat and promise. The panelist says, "Sixty-five per cent of today's company sales come from product lines not even in existence five years ago, and 25 per cent of 1957 sales were of products introduced in 1957." In fighting the recession, many a company is working off excess weight and coming through the ordeal a healthier organization.

• A rear-view mirror won't get you anywhere, but it keeps you informed on what's up and coming. Measuring imagination against experience is a never-ending game of wits, especially when we are engaged in long-term forecasting for industry. Mel Goldberg is conducting a survey (results to appear in an early issue) in which he asks two questions whose answers could be informative as well as tantalizing. They are, "About when did your company foresee the present turndown in business?" and "In what way did you act upon that prediction?" It won't help to say "I told you so" unless we also know what a company did to meet the challenge.

• What does your company look like in the mirror of public opinion? Publicity was once defined as "what you got in the papers" and public relations as "what you kept out." The distinction is both inaccurate and unfair. The word "corporation" used to create an ugly image, but the twentieth century has seen a gradual chastening of the "bad guys" and a better understanding of corporate responsibility to the community and the individual. The Presidents' Panel in July deals with the "corporate image," and top management's comments exemplify the soul searching that has brought about change in the public estimate of "big business" since the generation of the predators whose policy was summed up in the "public be damned" pronouncement of Commodore Vanderbilt.

—A.M.S.

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So telephone progress—and the advantage to all that comes from our pushing ahead—begins with our faith that Americans want good and improving service at prices which allow a fair profit.

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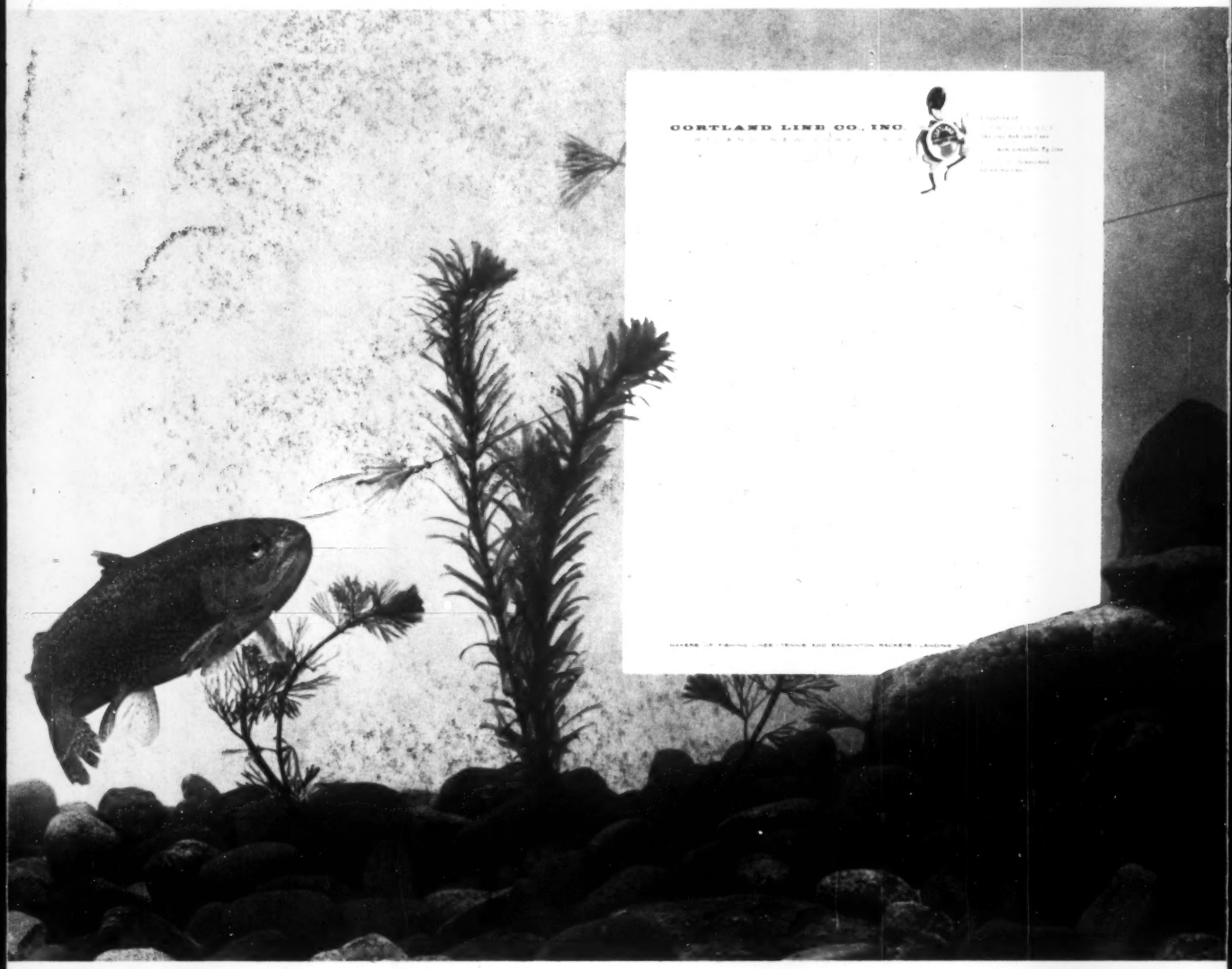

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